1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT

DSL - AMRB No. 93-M03

FINAL REPORT

Several Counties in Northeast Montana

MONTANA
ABANDONED MINE
RECLAMATION BUREAU

November 26th, 1993

SPECTRUM ENGINEERING

Billings, Montana

FINAL REPORT

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Sites Located in Northeastern Montana

Black Diamond North Mine
North Wibaux
Mullendore
Johnson Hill
Schmidt Site
Ahren
Seven Sisters
Canyon Creek
Bemer
Antelope II
Meyer
Raymond
Nikolaisen
Whitetail Creek
Nay-Butler

November 26th, 1993

Spectrum Engineering
1413 4th Avenue North
Billings, MT 59101

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1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT

1. INTRODUCTION

1.1 Project Description

The 1993 Northeastern MT Coal Maintenance Project consists of 15 project sites located in northeastern Montana from Wibaux in the southeastern part of Montana to Plentywood in the northeastern part of Montana. These sites are found in Wibaux, Dawson, Richland, Sheridan and Daniels Counties. All of these sites were previously reclaimed under the abandoned mine program and had failed in one way or another. The need for this project was to protect human health and safety caused by subsidence and dangerous openings.

The work consisted of salvaging and replacing topsoil; closing mine adits and shafts; backfilling subsidence; regrading erosional areas; neutralizing coal slack; and revegetating disturbed areas. The Contractor was also required to secure a MPDES Storm Water Discharge Permit to cover all sites.

1.1.1 Location and Access

Black Diamond North Mine Site.

The Black Diamond North Mine Site is located in the SE¼ Section 10, T13N, R60E in Wibaux County. The latitude is 46° 53.58' and the longitude is 104° 06.38'. The site is found on the 7 ½ minute USGS quadrangle named Beach West.

The site is situated about 7.5 miles southeast of the town of Wibaux. Access is by proceeding south from Wibaux on State Highway 7 (FAP 27) for approximately 4.2 miles. Turn left and head east on a graveled county road for 4.5 miles, then turn right (south) onto a dirt and gravel road. The mine site is 1.5 miles along this road, on the right (west) side.

North Wibaux Site.

The North Wibaux Site is located in the SE¼NE¼ Section 13, T15N, R59E in Wibaux County. The latitude is 47° 03.32' and the longitude is 104° 10.62'. The site is found on the 7 ½ minute USGS quadrangle named Odland Dam SW.

The site is approximately 5 miles due north of the town of Wibaux. Drive north from Wibaux on paved Highway FAS 261 for a distance of 4 miles until you reach Mile Post 4. Approximately ¼ mile past M.P. 4 turn right off the paved highway onto a gravel road and head east for 0.6 miles. Turn left (north) and proceed about ¼ mile to a gate on the left (west) side of the road. Follow an access trail a short distance to the mine site.

Mullendore Site.

The Mullendore Site is located in the NE¼SW¼ Section 30, T16N, R57E in Dawson County. The latitude is 47° 06.81' and the longitude is 104° 33.13'. The site is found on the 7 ½ minute USGS quadrangle named Allard.

It is approximately 7 miles east of Glendive. Access is by taking Interstate 94 east out of Glendive and traveling about 8 miles to the Griffith Creek Exit. Exit Interstate 94 and travel back to the west along the frontage road for approximately 1½ miles (crossing a flowing stream) before the road turns right (north) away from the Interstate. Follow this access road as it travels along Griffith Creek for approximately 1¼ miles. The road goes through 2 gates and comes to a stock pond and Area #1. Area No. 2 is accessible by a secondary road turning right and crossing the stock dam and proceeding up the hill.

Johnson Hill Site.

The Johnson Hill Site is located in the SE¼NE¼ Section 31, T20N, R54E in Dawson County. The latitude is 47° 26.91' and the longitude is 104° 52.50'. The site is found on the 7 ½ minute USGS quadrangles named Bloomfield and Red Top.

It is approximately 25 miles north-northwest of Glendive. The site can be reached by traveling north from Glendive on paved Highway FAS 254 for 26 miles to the town of Bloomfield, and continuing north on FAS 254 past Bloomfield for 4 more miles. At this point turn right (east) off the paved road onto a graveled road for a distance of two miles. Turn right (south) again and travel 1½ miles further to the site.

Schmidt Site.

The Schmidt Site is located in the SW¼NW¼ Section 34, T21N, R54E in Dawson County. The latitude is 47° 31.75' and the longitude is 104° 54.42'. The site is found on the 7 ½ minute USGS quadrangle named Clay Buttes.

It lies about 10½ miles to the southeast of Richey. Richey is between the towns of Circle and Sidney on State Highway 200. Access to the Schmidt Site is by proceeding southeast out of Richey on paved Highway FAS 254 for 11 miles. The site is about 400 feet on the left (east) side of the road.

Ahren Site.

The Ahren Site is located in the NW¼NW¼ Section 26 and the NE¼NE¼ Section 27, T23N, R53E in Richland County. The latitude is 47° 43.86' and the longitude is 104° 53.54'. The site is found on the 7 ½ minute USGS quadrangle named Kuester Lake.

It is between Richey and Lambert along Redwater Creek. Access is from State Highway 200, 9½ miles east of Richey and approximately 4 miles west of Enid. Turn off Highway 200 onto a graveled road and travel north for just over ½ mile to a fork in the road. Turn left (west) and go approximately 1 3/4 miles to a trail on the right side of the road. Follow this trail north about ½ mile to the site. You will cross Redwater Creek about 200 yards before the site.

Seven Sisters Site.

The Seven Sisters Site is located in the NW¼SW¼ Section 21, T21N, R58E in Richland County. The latitude is 47° 33.81' and the longitude is 104° 17.47'. The site is found on the 7 ½ minute USGS quadrangle named Crane.

It is 12 miles southwest of Sidney, just west of Highway 16 between Glendive and Sidney. Access is by proceeding southwest on State Highway 16 for 12 miles to a turnoff approximately one mile south of Crane. Turn right off the highway and follow a road west approximately ½ mile across the main canal and then along a trail about ¼ mile to the mine site.

Canyon Creek Site.

The Canyon Creek Site is located in the NW¼SW¼ Section 17, T21N, R59E in Richland County. The latitude is 47° 34.70' and the longitude is 104° 11.21'. The site is found on the 7 ½ minute USGS quadrangle named Piche.

It is situated 9½ miles south of Sidney, 3½ miles east of Crane. Access is by taking State Highway 23 east out of Sidney for 2½ miles to the junction of Highway FAS 261. Turn right onto FAS 261 and travel south 3½ miles. Turn right onto a gravel road which will take you west one mile, south one mile, west again for one mile, south again for one mile, and at a corner where the main road again turns to the west, leave this road and turn south onto a dirt road. Travel a little over ½ mile to the mine site.

Bemer Site.

The Bemer Site is located in the S½ Section 18, T27N, R56E in Richland County. The latitude is 48° 05.50' and the longitude is 104° 32.10'. The site is found on the 7 ½ minute USGS quadrangle named Dugout Creek.

It is south of the town of Culbertson about 3½ miles. The Bemer Mine Site can be reached by taking State Highway 16 south of Culbertson for about 4 miles. Turn right off the highway onto a county road and travel west 2 3/4 miles. The mine access road turns left (south) from the county road and takes you one mile to the mine site.

Antelope II Site.

The Antelope II Site is located in the SE¼SE¼ Section 16, T34N, R55E in Sheridan County. The latitude is 48° 41.60' and the longitude is 104° 31.00'. The site is found on the 7 ½ minute USGS quadrangle named Shippe Canyon.

It is situated 5½ miles south-southeast of Plentywood. Take State Highway 16 south out of Plentywood for just over 5½ miles. Turn right onto a county road and travel west for 1½ miles where the road turns and heads southwest. Continue for 1½ miles more, and the mine site can be found just to the right (north) of the road.

Meyer Site.

The Meyer Site is located in the NE¼ Section 5, T35N, R58E in Sheridan County. The latitude is 48° 49.30' and the longitude is 104° 08.95'. The site is found on the 7 ½ minute USGS quadrangle named Tadpole Lake.

It lies 6 miles southwest of Westby, which is on the Montana/North Dakota state line. After traveling 4 miles west on State Highway 5 from Westby, turn left (south) onto a graveled county road. Go 2¼ miles, then turn right (west) and follow the road for just over ¼ mile. Turn left and go south on an oil well access road for 1/8 mile to mine site.

Raymond Site.

The Raymond Site is located in the W½ Section 6, T36N, R55E in Sheridan County. The latitude is 48° 53.80' and the longitude is 104° 34.40'. The site is found on the 7 ½ minute USGS quadrangle named Raymond.

It is situated 2 miles north of the town of Raymond and 6½ miles south of the Canadian border just east of State Highway 16. Drive north out of Raymond for 2 miles and the site is accessible across a plowed field. The site is 3/4 mile north of the owners house.

Nikolaisen Site.

The Nikolaisen Site is located in the SE¼SW¼ Section 10, T35N, R55E in Sheridan County. The latitude is 48° 47.76' and the longitude is 104° 30.40'. The site is found on the 7 ½ minute USGS quadrangle named Plentywood.

It is situated 2½ miles northeast of Plentywood. Drive northeast out of Plentywood toward the Sher-Wood Airport. Proceed past the airport turnoff and travel north for ½ mile, and then proceed east 3/4 mile until the road turns north. Leave the main road and continue east-northeast for ½ mile to the project site.

Whitetail Creek Site.

The Whitetail Creek Site is located in the SE¼ Section 24, T36N, R50E in Daniels County. The latitude is 48° 51.58' and the longitude is 105° 06.75'. The site is found on the 7 ½ minute USGS quadrangle named Navajo.

It is 5 miles northeast of Flaxville. Take the Highway 511 north out of Flaxville heading towards Whitetail. Proceed 3.5 miles north and then turn right and head east 3 miles. The road turns north after 3 miles. Proceed ¼ mile north and turn left (west) and proceed ¼ mile to the project site.

Nay-Butler Site.

The Nay-Butler Site is located in the SE¼SE¼ Section 20, T36N, R47E in Daniels County. The latitude is 48° 51.30' and the longitude is 105° 35.20'. The site is found on the 7 ½ minute USGS quadrangle named Four Buttes.

It is 8½ miles northeast of Scobey and 3 miles north of Four Buttes. Take Highway FAS 248 west out of Scobey for 8½ miles to Four Buttes. Turn right and proceed north on the county road for 3 miles. Turn right again and head east for approximately 3/4 mile where road will turn left (north) for ¼ mile and then right. Proceed about ¼ mile and the site is on the right or south side of the road.

The reader is referred to the Site and Vicinity Maps shown on the Site Plan sheets for further description of the access to the sites. No 8 ½ x 11 inch site access maps were prepared for these sites.

1.1.2 Land Ownership

The land ownership is shown in the following table from Section I of the bid package.

SITE NAME	LOCATION	LANDOWNER/CONTACT
	WIBAUX COUNTY	
Black Diamond North Mine	NE¼SE¼ Section 10, T13N, R60E	Earl Smith Rural Route 198 Wibaux, MT 59353 406-795-2554
North Wibaux Site	SE¼NE¼ Section 13, T15N, R59E	Mrs. Lanny Peters 708 1st Avenue South Wibaux, MT 59353 406-795-8119

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DAWSON COUNTY

Mullendore	NE¼SW¼ Section 30, T16N, R57E	Donald D. Mullendore 323 Clough St. Glendive, MT 59330 406-365-5314
Johnson Hill Site	SE¼NE¼ Section 31, T20N, R54E	Lloyd & Kathryn Hostetler 522 Road 524 Bloomfield, MT 59315 406-583-7758
Schmidt Site	SW¼NW¼ Section 34, T21N, R54E	Warren Schwartz Box 1002 Wolf Point, MT 59201 406-653-1168

RICHLAND COUNTY

Seven Sisters	NW¼SW¼ Section 21, T21N, R58E	Ed Clemmer Rural Route Crane, MT 59217
Ahren Mine	NW¼NW¼ Section 26, T23N, R53E	Rhines Farming Corp. Harold Rhines P.O. Box 19 Sidney, MT 59270 406-774-3465 or 482-3750
	NE¼NE¼ Section 27, T23N, R53E	Tim Bouchard Route 2, Box 2366 Sidney, MT 59270 406-482-4125
Canyon Creek Site	NW¼SW¼ Section 17, T21N, R59E	Tod V. & Susan L. Gorder Box 4054 Skaar Route Sidney, MT 59270 406-482-2254
Bemer Site	NE¼NE¼SW¼ Section 18, T27N, R56E	Howard & Julie Bemer (NE¼SW¼, Section 18) Box 1596 Poplar, MT 59255 406-768-3601

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SHERIDAN COUNTY

Antelope II Site	SE¼SE¼ Section 16, T34N, R55E	State of Montana Department of State Lands Attn: Jeff Hagener 1625 11th Avenue Helena, MT 59620 406-444-2074 James Cybulski (Lessee) RR 1, Box 1130 Plentywood, MT 59254 406-286-5615
Meyer Mine	NW¼NE¼ Section 5, T35N, R58E	John & Marilyn Shoal Box 235 Columbia Falls, MT 59912 Donald Shoal (Contact) 518 Glenwood Plentywood, MT 59254 406-765-1475
Raymond Mine	SW¼NW¼ Section 6, T36N, R55E	Myrlen Paulson Box 122 Raymond, MT 59256 406-895-2523
Nikolaisen Site	SE¼SW¼ Section 10, T35N, R55E	Maretta Ramirez 7508 E. McKnight Scottsdale, AZ 85251 Unlisted Phone Number Lucille C. King Stewart 15 Ash Drive Wayburn, Sask. S4H0R9 306-842-8141

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DANIELS COUNTY

Whitetail Creek Site	W½SE¼ Section 24, T36N, R50E	Mr. Larry Meyers (S½SE¼ & NW¼SE¼) Rural Route 1 Flaxville, MT 59222 406-779-3637
Nay-Butler Site	SE¼SE¼ Section 20, T36N, R47E	Tade Inc. Marvin Tade-President Rural Route Scobey, MT 59263 406-783-5514

1.1.3 History

The history (if any existed) on each of these projects is found with the original bid packages and final reports for these projects. No history is repeated herein.

1.2 Project Objectives/Site Problems

This project was needed to protect health and safety caused by subsidence holes and dangerous openings which have reopened since the original AMRB work at each site was completed. The site problems are described below:

1.2.1 Black Diamond North Mine

Two subsidence holes (17'x 8'x 6' and 7' x 7½ x 2') require backfilling with adjacent borrow material. All disturbed areas will be revegetated.

1.2.2 North Wibaux

Two subsidence holes (11' x 13' x 5'd and 14' x 17' x 5'd) require backfilling with borrow from the coal slack pile. Then the backfilled subsidence holes and coal slack area are to be neutralized with lime. The cover soil will be respread over the subsidence holes and borrow area to a depth of 3 inches. All disturbed areas will be revegetated.

1.2.3 Mullendore

Thirteen 13 subsidence holes need to be backfilled with borrow from the designated borrow area. Prior to the backfill operation, 6 inches of cover soil will be salvaged and temporarily stockpiled from the borrow area. After sufficient borrow has been secured, the borrow area will be retopsoiled. Then all backfilled areas, the borrow area and all other disturbed areas will be graded and fertilized, seeded and mulched.

1.2.4 Johnson Hill

The goal is to repair some erosional channels, neutralize and cover coal slack areas with topsoil, and revegetate.

Two coal slack areas (150' x 150' and 50' x 120') will be neutralized with lime. The coal slack areas will then be covered with 3 inches of topsoil from the borrow area. The borrow area, coal slack areas and erosional channel regrade areas will then be revegetated.

1.2.5 Schmidt

A subsided airshaft requires backfilling. The hole is 7' x 11' x 4'd with a smaller 1' x 2' hole in the bottom. Adjacent borrow material will be used as fill. All disturbed areas will be revegetated.

1.2.6 Ahren

Adjacent borrow material will be used to backfill four subsidence holes (6' x 4' x 4'd, 3' x 3' x 8'd, 5' x 6' x 4'd, and 6' x 8' x 10'd). The disturbed areas (borrow area, backfilled subsidence holes and all other disturbance) will be revegetated.

1.2.7 Seven Sisters

The work is to collapse a roof over an inclined opening, backfill the remaining hole, and then revegetate.

First, the Contractor will develop an access route as necessary to access the inclined opening. The work is to collapse the roof over the opening for a distance of 15 feet, then backfill the hole with borrow from the coal slack area. Both the backfilled area and the coal slack borrow area will be neutralized with lime. Then revegetate the borrow area, access route, backfilled area, and all other disturbed areas.

1.2.8 Canyon Creek

Three subsidence holes (12' x 14' x 7'd, 5' x 8' x 5'd, 5' x 3' x 5'd plus undercuts) require backfilling with adjacent borrow material. All disturbed areas will be revegetated.

1.2.9 Bemer

One mine adit (4' x 10' x 30'+ long) has reopened and will be backfilled with adjacent borrow material. The backfilled adit, borrow area and other disturbed areas will be revegetated.

1.2.10 Antelope II

The work includes regrading numerous erosional channels (60' x 1' x 0.5'd) and repair of the diversion ditch as necessary. Then all disturbed areas will be revegetated.

1.2.11 Meyer

The work includes stripping and stockpiling topsoil from the borrow area (20 foot radius around the subsidence hole), grading 6 inches of material into the subsidence hole (13' x 19' x 3'd) from the borrow area, and then replacing the topsoil evenly over the entire area. All disturbed areas (backfilled subsidence hole and borrow area) will be revegetated.

1.2.12 Raymond

The goal is to determine if an airshaft needs to be backfilled, fill it with boulders and dirt, and stockpile boulders on site.

The Contractor will excavate the air shaft (10' x 21' area) to a depth of 8 feet to determine if further work is required. If the air shaft is already backfilled, then refill the bottom 4 feet with adjacent boulders and top 4 feet with dirt. Spread remaining cover soil in low surrounding areas. Remaining rock piles scattered throughout the unplowed mine area will be load-haul-dumped to a central stockpile. The backfilled air shaft will be revegetated.

A new subsidence hole was found when the earthwork contractor arrived on-site. This hole was also backfilled.

1.2.13 Nikolaisen

Two coal slack piles (30' x 150' and 25' x 60') will be neutralized with lime. Then borrow (3 inches of topsoil) will be placed over the neutralized coal slack areas. All disturbed areas will be revegetated.

1.2.14 Whitetail Creek

There is a subsidence hole (with dimensions of 7'-14' wide by 23' long by 4'-8' deep) in the creek bottom to backfill and revegetate. Adjacent borrow material will be used as fill. The backfilled subsidence hole and borrow areas will be revegetated. Ten straw bales will be placed as shown on the plan sheet for erosion control.

1.2.15 Nay-Butler

The work is to backfill three subsidence areas consisting of a subsidence trench (9' x 13' x 7'd), and two small subsidence holes with adjacent borrow material. The backfilled subsidence areas, borrow area and all other disturbed areas will be revegetated.

2. RESPONSIBLE PARTIES

2.1 Contractor

The successful low bidder was Hallett Reclamation. Their address is shown below:

Hallett Reclamation Company
P.O. Box 169
Livingston, Montana 59047
Phone: 406/222-1446
MT Contractor's License: 7789 A

2.2 Reclamation and Engineering Plan

Spectrum Engineering was assigned the responsibility of preparing the reclamation and engineering specifications prior to contractor selection. Plans conforming to the general requirements were formulated in the field to meet specific conditions.

Spectrum's address is shown below:

Spectrum Engineering
1413 4th Avenue North
Billings, Montana 59101
Phone: 406/259-2412

2.3 Quality Control Inspection

Spectrum Engineering performed the quality control inspection. The project engineer was Bill Maehl and the construction inspector was Hank Lowe.

2.4 AMRB Coordination

The AMRB Project Manager was Joel Chavez, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-Bid Conference

The pre-bid conference was held on July 20th, 1993 at the courthouse in Glendive.

3.2 Bid Date

The bid opening date was July 30th, 1993.

3.3 Three Lowest Bids

There were 3 bidders on this project with bids ranging from $24,826.90 to $60,170.00. The engineer's estimate was $23,880.00. The bid tabulations have been included in ATTACHMENT 1. The three bidders are listed below.

Hallett Reclamation	Pine Street	Donnes Construction
Livingston, Montana	Glendive, Montana	Billings, Montana
$ 24,826.90	$ 26,136.00	$ 60,170.00

3.4 Contract Award/Notice of Award/Notice to Proceed

The contract was awarded to the low bidder (Hallett Reclamation) after receiving all of their bonds, stormwater permit, and other required paper-work. The Agreement was dated August 13th, 1993.

The Notice to Proceed was issued August 13th, 1993. Hallett Reclamation performed all of the work themselves. The work started September 9th and was completed on September 26th. They used 18 of the 45 allowed calendar days to complete the work.

The prime contractors address is shown under 2.1 Contractor above.

3.5 Construction Start-up

The Contractor started mobilizing his equipment to the Black Diamond North site on September 9th, 1993.

3.6 Change Orders

There were two change orders written for this project. Copies of these change orders are included in this report as ATTACHMENT 2. The first change order was for excavating one new subsidence hole (extra Raymond site) for an additional sum of $500.00. The second change order was for final quantities adjustments and three new subsidence holes for the sum of $352.82. The change orders added a total of $852.82 to the contract price.

3.7 Work Stoppages

There were no work shut-downs.

3.8 Requests for Payment

There was one payment request on this project. Pay Request 1 was for the period from job start through job completion (September 26th). The amount completed for this pay request was $ 26,679.72.

3.9 Substantial Completion

The date of Substantial Completion was September 26th, 1993.

3.10 Final Completion and Approval

The AMRB field inspection date was October 4th, 1993. The Final Completion date is one year from the Substantial Completion date or September 26th, 1994.

3.11 Final Payment

Final payment was made to the Contractor on October 28th, 1993. Copies of the first (final) payment request have been included in ATTACHMENT 3.

4. CONSTRUCTION

4.1 Description of Project Plan

The objective of the proposed work is to perform maintenance work on previously reclaimed AMRB coal projects. The work at each site was minor and required about ½ to 1½ days per site to complete. More time was spent in mobilization/demobilization to each site than time spent working. None of these sites presented any construction difficulties. Several of the sites had further subsided from when the AMRB/engineer field visit occurred and when construction started. Reclamation plans were developed on-site for these extras.

4.2 Major Equipment List

Type	Make/Model	Size/Horsepower	No. on Job
1993 backhoe with loader	Caterpillar 416-B	67 hp	1
1982 dump truck	Ford F-700	5 cy	1
Tractor with loader	John Deere 770	2 yd	1
Grass seeder	Brillion		1
3-Axle trailer	Bame	10 ton	1
2-Axle trailer	Smith	4 ton	1
Pickup with fuel tank	General Motors	150 gallon	1
Spring tooth	6 foot		1
Crimper	7 foot		1

4.3 Contractor Employees

The number of contractor employees on the job was 2 counting the Contractor himself.

4.4 Construction Activities

Hallett Reclamation moved their equipment to the Black Diamond North site on September 9th and began work on September 10th. Subsidence Hole B had enlarged by spring rain. It measured 16'w x 25'l x 6'd after excavation around the sandstone shelf. It was backfilled with 89 cy of borrow. Hole A was backfilled as per the site plan. After revegetation was complete, mobilized to North Wibaux site. All work done as shown on site plan. Mobilized to Mullendore site. Filled subsidence holes on east side with borrow. Borrow turned into coal seam so backfilled west side from around subsidence holes. Revegetated all disturbed areas.

Moved to Johnson Hill site next and completed as per plan sheet by repairing erosional channels and then neutralized the coal slack areas. Topsoil was spread and area was revegetated. Mobilized to Schmidt site, completed per plan sheet by backfilling and revegetating the air shaft. Mobilized to Ahren site and backfilled the subsidence holes.

Moved from there to Seven Sisters site. The mine opening was now larger than the plan sheet indicated. The hole took 156½ cubic yards to fill. Roof of mine opening was a soft sandstone and easy to break off. Neutralized coal slack area and backfilled the mine void (with coal slack). Mobilized to Canyon Creek site and backfilled 3 subsidence holes and revegetated. The larger hole had enlarged to 14' x 20' x 10' deep and required 120 cubic yards of fill. The borrow area was moved inside the fence because 100+ head of cattle was in the surrounding pasture.

Mobilized to Bemer site and backfilled and revegetated the adit. Moved to Antelope II site and regraded the erosion channels and redeveloped the drainage ditch. Revegetation was completed. Mobilized to Meyer site, backfilled the subsidence hole and revegetated. Mobilized to the Nikolaisen site, neutralized the coal slack piles, covered with topsoil and revegetated.

Then mobilized to the Raymond site. At the Raymond extra site (Nicklockin-John Becker's site), subsidence hole 1 was excavated to a depth of 11 feet. Some garbage and coal located. Backfilled and compacted. Landowner showed us a second subsidence hole (3' x 3' x 2½' deep) in the field where his tractor had fallen in. This hole excavated to a depth of 8 feet and then was backfilled and compacted. No revegetation was done per the landowner since it was in his plowed field. At the main Raymond site, the assumed air shaft was excavated. No evidence of air shaft found. A new subsidence or air shaft had opened up. It was 10' x 12' x 12' deep. It was filled with 40 cubic yards of boulders and 3 feet of topsoil. The scattered boulders (about 95 cubic yards worth) from the previous reclamation was stockpiled. Revegetation was then completed.

Mobilized to the Whitetail Creek site, backfilled the subsidence hole, placed the straw bales, and revegetated the subsidence and borrow area. Mobilized to the Nay-Butler site. Backfilled the 3 subsidence holes plus one extra hole. Revegetated the four subsidence holes and borrow area. This completed the Northeastern MT Coal Maintenance Project.

4.5 Quantities Used

Almost every bid item was based on a lump sum basis. This made the administration of the contract fairly straight-forward. No disputes were raised by the Contractor about the estimated quantities being wrong.

Item	Amount		Unit Cost
Mobilization	15.	sites	$ 473.07 / site
Provide Water	0.	gallons	$ 172.50 / 1000 gallons
Salvage and Replace Cover Soil	105.	yards	$ 6.33 / yard
Close Mine Openings (110 CY)	2.	each	$ 462.50 / each
Subsidence Backfilling	470.	yards	$ 7.97 / yard
Erosion Grading	20.	yards	$ 98.50 / yard
Excavate Air Shaft	1.	each	$ 1190.00 / each
Neutralize Coal Slack Areas	1.13	acres	$ 2600.00 / acre
Straw Bales for Erosion Control	10.	bales	$ 9.00 / bale
Fertilize, Seed & Mulch	2.93	acres	$ 1530.00 / acre

5. PAYMENT REQUESTS

5.1 Pay Request

One pay requests was processed for this project as addressed under Section 3.10 above. A copy of this pay request has been included in ATTACHMENT 3.

5.2 Cost per Site

Site Name	Disturbed Acres	Cost/Acre	Total Project Cost
Black Diamond North	0.10	$ 29,305.20	$ 2,930.52
North Wibaux	0.20	13,015.00	2,603.00
Mullendore	0.10	16,180.00	1,618.00
Johnson Hill	0.80	5,692.50	4,554.00
Schmidt	0.02	14,030.00	280.60
Ahren	0.20	3,755.00	751.00
Seven Sisters	0.30	9,703.33	2,911.00
Canyon Creek	0.20	5,785.00	1,157.00
Bemer	0.20	4,480.00	896.00
Antelope II	0.20	6,355.00	1,271.00
Meyer	0.10	5,130.00	513.00
Raymond	0.01	260,290.00	2,602.90
Nikolaisen	0.20	4,575.00	855.00
Whitetail Creek	0.20	4,560.00	912.00
Nay-Butler	0.10	18,247.00	1,824.70
Total	2.93	$ 8,764.41	$ 25,679.72

5.3 Total Project Cost

The original bid was $24,826.90 and two change orders were issued for $852.82 ($500.00 + $352.82) bringing the total construction cost to $25,679.72. The total engineering cost for the project was $ 38,893.82. An analysis of the engineering costs versus construction costs is presented in ATTACHMENT 4.

6. PROJECT SUMMARY

6.1 Summary of Project

The project went as scheduled with few modifications. The only changes necessary were due to additional subsidence which had occurred from the time the bid package was prepared and the construction started.

Hallett Reclamation completed the project in the allowable contract time using 18 of the 45 days available.

6.2 Site Condition after Completion

All work looked good and followed specifications. Hallett Reclamation, the Contractor, did a good job on this small project.

6.3 Maintenance or Follow-up

The Nay-Butler and Raymond sites exhibited active subsidence (new holes opened up from when the engineer was shown the sites and when construction started). These sites and Bemer should be checked next spring for further subsidence or adit opening.

6.4 Bid Package (Construction) Drawings

The bid package contained seventeen Site Plan sheets covering the work at the fifteen sites. These are located in ATTACHMENT 5 at the back of the final report. These plans represent the reclamation engineering design (the plans from which the contractors bid the work).

6.5 As-Built Drawings

The original Site Plan sheets were modified to reflect as-built final reclamation construction. These are the same plans presented right before the photographs. Since each of these sites was small, there was no need to present a complete set of pre- and post-construction drawings.

7. COMMENTS/SUGGESTIONS

On this project the engineering planning went well. One site had to be dropped (Flom) because the landowner withdrew his verbal consent prior to signing the consent form after listening to a Ross Perot speech. Planning should not have proceeded without written consent. The final work product accomplished all the proposed objectives.

8. PHOTOGRAPHS/SLIDES

8.1 Listing

The description of the photographs taken to document the work performed is found at the back of the final report under ATTACHMENT 5. Each picture is numbered on the front and has a generic label on the back. Following the photo descriptions are the photos themselves. The two bound final reports contain photographs and the unbound report contains only photocopies of the photo sheets (instead of slides) per the AMRB Project Manager.

8.2 Photo Location Maps

The location where the photos were taken and their orientation are shown on the as-built plan sheets located in ATTACHMENT 5 at the back of the report.

8.3 Photos/Slides

The photographic documentation of the project includes only print film per the AMRB Project Manager.

A sequence of photographs documenting the construction activities begins immediately following the photo location maps at the back of the report.

ATTACHMENT 1

BID TABULATIONS

1993 Northeastern MT Coal Maintenance Project
Many Counties, MONTANA

DSL/AMRB 93-MO3
DATE July 30, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		HALLETT RECLAMATION CO.		PINE STREET INC.		DONNES CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	Mobilization		0.00		0.00		0.00		0.00
	1		Black Diamond North Mine		0.00	2360.00	2,360.00	1200.00	1,200.00	2900.00	2,900.00
	1		North Wibaux Site		0.00	205.00	205.00	850.00	850.00	2900.00	2,900.00
	1		Mullendore Site		0.00	240.00	240.00	1000.00	1,000.00	2900.00	2,900.00
	1		Johnson Hill Site		0.00	300.00	300.00	1000.00	1,000.00	2900.00	2,900.00
	1		Schmidt Site		0.00	170.00	170.00	650.00	650.00	2900.00	2,900.00
	1		Ahren Site		0.00	205.00	205.00	1000.00	1,000.00	2900.00	2,900.00
	1		Seven Sisters Site		0.00	355.00	355.00	1200.00	1,200.00	2900.00	2,900.00
	1		Canyon Creek Site		0.00	185.00	185.00	1000.00	1,000.00	2900.00	2,900.00
	1		Bemer Site		0.00	315.00	315.00	1200.00	1,200.00	2900.00	2,900.00
	1		Antelope II Site		0.00	335.00	335.00	850.00	850.00	2900.00	2,900.00
	1		Meyer Mine		0.00	240.00	240.00	850.00	850.00	2900.00	2,900.00
	1		Raymond Mine		0.00	260.00	260.00	850.00	850.00	2900.00	2,900.00
	1		Nikolaisen Site		0.00	185.00	185.00	1100.00	1,100.00	2900.00	2,900.00
	1		Whitetail Creek Site		0.00	241.00	241.00	850.00	850.00	2900.00	2,900.00
	1		Nay-Butler Site		0.00	1500.00	1,500.00	1000.00	1,000.00	2900.00	2,900.00
	1	Inc	MPDES Storm Water Discharge Permit		0.00	0.00	0.00		0.00		0.00
2.	10	KGAL	Provide Water		0.00	172.50	1,725.00	20.00	200.00	50.00	500.00
3.	3	LS	Salvage & Replace Cover Soil		0.00		0.00		0.00		0.00
	1	LS	Mullendore Site		0.00	195.00	195.00	150.00	150.00	300.00	300.00
	1	LS	Canyon Creek Site		0.00	195.00	195.00	150.00	150.00	300.00	300.00
	1	LS	North Wibaux Site		0.00	275.00	275.00	225.00	225.00	450.00	450.00
4.	2	EA	Close Mine Openings		0.00		0.00		0.00		0.00
							9,486.00		15,325.00		45,050.00

1993 Northeastern MT Coal Maintenance Project
Many Counties, MONTANA

DSL/AMKB 93-MO3
DATE July 30, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		HALLETT RECLAMATION CO.		PINE STREET INC.		DONNES CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
	1	EA	Seven Sisters Site		0.00	650.00	650.00	800.00	800.00	650.00	650.00
	1	EA	Berner Site		0.00	275.00	275.00	600.00	600.00	450.00	450.00
5.	9	LS	Subsidence Backfilling		0.00		0.00		0.00		0.00
	1	LS	Black Diamond N. Mine		0.00	160.00	160.00	150.00	150.00	360.00	360.00
	1	LS	North Wibaux Site		0.00	1505.00	1,505.00	575.00	575.00	1150.00	1,150.00
	1	LS	Mullendore Site		0.00	1030.00	1,030.00	300.00	300.00	600.00	600.00
	1	LS	Schmidt Site		0.00	80.00	80.00	130.00	130.00	130.00	130.00
	1	LS	Ahren Site		0.00	140.00	140.00	350.00	350.00	350.00	350.00
	1	LS	Canyon Creek Site		0.00	275.00	275.00	560.00	560.00	700.00	700.00
	1	LS	Meyer Mine		0.00	120.00	120.00	150.00	150.00	300.00	300.00
	1	LS	Whitetail Creek Site		0.00	275.00	275.00	350.00	350.00	700.00	700.00
	1	LS	Nay-Butler Site		0.00	160.00	160.00	350.00	350.00	410.00	410.00
6.	2	LS	Erosion Grading		0.00		0.00		0.00		0.00
	1	LS	Johnson Hill Site		0.00	1340.00	1,340.00	200.00	200.00	500.00	500.00
	1	LS	Antelope II Site		0.00	630.00	630.00	350.00	350.00	500.00	500.00
7.	1	LS	Excavate Air Shaft and Stockpile Rock Piles at Raymond Site		0.00	1190.00	1,190.00	800.00	800.00		0.00
8.	1.13	Acre	Neutralize Coal Slack Areas Permit		0.00		0.00		0.00		0.00
	0.12	Acre	North Wibaux Site		0.00	2600.00	312.00	400.00	48.00	2000.00	240.00
	0.65	Acre	Johnson Hill Site		0.00	2600.00	1,690.00	400.00	260.00	2000.00	1,300.00
	0.22	Acre	Seven Sisters Site		0.00	2600.00	572.00	400.00	88.00	2000.00	440.00
	0.14	Acre	Nikolaisen Site		0.00	2600.00	364.00	500.00	70.00	2000.00	280.00
9.	10	EA	Straw Bales for Erosion Control at Whitetail Creek Site		0.00	9.00	90.00	15.00	150.00	20.00	200.00
10.	2.93	Acre	Fertilize, seed and Mulch		0.00		0.00		0.00		0.00
							10,858.00		6,281.00		9,260.00

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1993 Northeastern MT Coal Maintenance Project
Many Counties, MONTANA

DSL/AMRB 93-MO3
DATE July 30, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		HALLETT RECLAMATION CO		PINE STREET INC.		DONNES CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
	0.10	Acre	Black Diamond N. Mine		0.00	1530.00	153.00	1500.00	150.00	2000.00	200.00
	0.20	Acre	North Wihaux Site		0.00	1530.00	306.00	1500.00	300.00	2000.00	400.00
	0.10	Acre	Mullendore Site		0.00	1530.00	153.00	1500.00	150.00	2000.00	200.00
	0.80	Acre	Johnson Hill Site		0.00	1530.00	1,224.00	1500.00	1,200.00	2000.00	1,600.00
	0.02	Acre	Schmidt Site		0.00	1530.00	30.60	2000.00	40.00	2000.00	40.00
	0.20	Acre	Ahren Site Site		0.00	1530.00	306.00	2000.00	400.00	2000.00	400.00
	0.30	Acre	Seven Sisters Site		0.00	1530.00	459.00	1500.00	450.00	2000.00	600.00
	0.20	Acre	Canyon Creek Site		0.00	1530.00	306.00	1500.00	300.00	2000.00	400.00
	0.20	Acre	Bemer Site		0.00	1530.00	306.00	1500.00	300.00	2000.00	400.00
	0.20	Acre	Antelope II Site		0.00	1530.00	306.00	1500.00	300.00	2000.00	400.00
	0.10	Acre	Meyer Mine		0.00	1530.00	153.00	1500.00	150.00	2000.00	200.00
	0.01	Acre	Raymond Mine		0.00	1530.00	15.30	4000.00	40.00	2000.00	20.00
	0.20	Acre	Nikolaisen Site		0.00	1530.00	306.00	1500.00	300.00	2000.00	400.00
	0.20	Acre	Whitetail Creek Site		0.00	1530.00	306.00	1500.00	300.00	2000.00	400.00
	0.10	Acre	Nay-Butler Site		0.00	1530.00	153.00	1500.00	150.00	2000.00	200.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
					0.00		0.00		0.00		0.00
						24,826.90	4,482.90	26,136.00	4,530.00	60,170.00	5,860.00

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ATTACHMENT 2

CHANGE ORDERS

CHANGE ORDER

ORDER NO. 1

PROJECT TITLE: 1993 Northeastern MT Coal Maintenance Project

MONT A/E or DSL-AMRB: 93-M03

CONTRACT DATE: August 13, 1993

OWNER: Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Hallett Reclamation Company

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Excavate the subsidence hole to a depth of 8 feet from ground surface to determine if further work is required. (7'x7'x6' hole-11 cy) Backfill and compact the subsidence hole assuming no further work is required. (7'x7'x8' fill-15 cy) No vegetation applied per landowner request					470.00	470.00
						TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.	470.00
						OVERHEAD & PROFIT @ 6.383 %	30.00
						GRAND TOTAL - THIS CHANGE ORDER	500.00

Original Contract Price	24,826.90
Current Contract Price Adjusted by Previous Change Order	24,826.90
Cost this Change Order (+ or -)	500.00
New Contract Price including this Change Order	25,326.90

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

The date for completion of all work will be 45 days from the Notice To Proceed Date.

Description and Justification for Change:

1. Landowner John Becker (P.O. Box 151, Raymond, MT 59256, at phone 895-2584) called the DSL on 8/2/1993 and ask if a coal mine subsidence hole (4 foot diameter and over 2 foot deep) on his property could be fixed. His tractor had dropped into it. The site is just north of the Raymond mine site in the NE bid package. This site had been reclaimed before as the Raymond site (Nick Lockin Mine) in T37N, R54E, SE¼ of Section 34, Sheridan County. Mr. Becker ask that no vegetation be planted after the hole is backfilled.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $ 500.00 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $ 500.00 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

SURETY

United Fire & Casualty Company

By: [signature]

Seal

Recommended by: Spectrum Engineering [signature] 8/11/93

Engineer Date

Accepted by: Hallet Reclamation Company

Contractor Date

Approved by: [signature] 8/16/93

Owner Date

[signature] DSL 10/28/93

CHANGE ORDER

ORDER NO. 2

PROJECT TITLE: 1993 Northeastern MT Coal Maintenance Project

MONT A/E or DSL-AMRB: 93-M03

CONTRACT DATE: August 13th, 1993

OWNER: Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Hallett Reclamation Company

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Excavated and backfilled 2nd subsidence hole at new Raymond site to a depth of 8 feet below ground surface (26 cubic yards)					7.97	207.22
2.	Backfilled new subsidence at Raymond site (54 cubic yards)					7.97	430.38
3.	Backfilled new subsidence at Nay-Butler (3 CY)					3.90	11.70
4.	Additional backfill volumes over and above bid package estimates						
	Black Diamond (58 cubic yards)					4.44	257.52
	Ahren (25 cubic yards)					4.00	100.00
	Canyon Creek (50 cubic yards)					3.92	196.00
	Seven Sisters (87½ cubic yards)					10.00	875.00
5.	Provide Water (10 Kgal in bid package for dust suppression) - no water actually provided					172.50	(1725.00)
	TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						352.82
	OVERHEAD & PROFIT @ _____%						INC.
	GRAND TOTAL - THIS CHANGE ORDER						$ 352.82

Original Contract Price	$ 24,826.90
Current Contract Price Adjusted by Previous Change Order	$ 25,326.90
Cost this Change Order (+ or -)	+ $ 352.82
New Contract Price including this Change Order	$ 25,679.72

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

The date for completion of all work was 9/26/1993.

Description and Justification for Change:

1. One new subsidence hole at new Raymond site (landowner John Becker) in T37N, R54E, SE¼ Section 34. Mr. Becker ask that no vegetation be planted after the hole is backfilled. His tractor fell into the 3'x3'x2½'deep hole. It was excavated to 8 foot depth similar to first one (change order 1). Size of excavation and work task identical to change order 1 (26 CY).

2. New subsidence hole opened up at Raymond site (Myrlen Paulson landowner). It was 10'x12'x12'deep. It required 40 CY of boulders and 14 CY of topsoil (3 feet) to fill it.

3. Backfill new subsidence at Nay-Butler. The hole was 3'x3'x8'deep and required 3 CY of fill.

4. Additional backfill volumes for subsidence and close mine openings as follows:

Site	Bid Estimate	Actual Volume	Extra CY	Bid/ CY	Extra $$$
Black Diamond	36 CY	94 CY	58	$ 4.44	$257.52
Ahren	35 CY	60 CY	25	$ 4.00	$100.00
Canyon Creek	70 CY	120 CY	50	$ 3.92	$196.00
Seven Sisters	65 CY	152½ CY	87½	$10.00	$875.00

Entire subsidence backfill bid at $3,745 for 470 CY or $7.97/CY. New items 1 and 2 above based on average price per cubic yard bid.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $ 352.82 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $ 352.82 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

SURETY

United Fire & Casualty Company

By: [signature]

Non-Resident Seal / License #R11017

Recommended by: Spectrum Engineering [signature] 10/9/93

Engineer Date

Accepted by: Hallett Reclamation Company [signature] 10-15-93

Contractor Date

Approved by: [signature] 10/28/93

Owner Date

ATTACHMENT 3

PAYMENT REQUESTS

PAYMENT REQUEST NO. 1

FROM 8/13/1993 TO 9/27/1993

PROJECT TITLE: 1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT

LOCATION: NORTHEASTERN MONTANA MONT A/E or DSL-AMRB: 93-M03

NAME OF CONTRACTOR: HALLETT RECLAMATION COMPANY

ADDRESS: P.O. BOX 169, LIVINGSTON, MT 59047

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 24,826.90
Change Order No. 1	$ 500.00	
Change Order No. 2	$ 352.82	
Change Order No.	$	
Amount of Approved Change Order(s)		$ 852.82
TOTAL CONTRACT AMOUNT		$ 25,679.72

Pay Request No.	Amount of Request
1	$25,679.72

Total Contract Amount Completed to Date	$ 25,679.72
Less Retainage (0 %)	$ 0.00
TOTAL AMOUNT EARNED TO DATE	$ 25,679.72
Less Previous Payments	$ 0.00
AMOUNT DUE THIS PAYMENT	$ 25,679.72
Less 1% Tax	$ 256.80
TOTAL DUE CONTRACTOR	$ 25,422.92

OK for Chm
10/27/93

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

HALLETT RECLAMATION COMPANY
Contractor

By [signature]

Date 10-15-93

RECOMMENDED BY:

SPECTRUM ENGINEERING
Engineer

By William C. MacKel

Date 10/9/93

APPROVED BY:

DEPARTMENT OF STATE LANDS, ABANDONED MINE RECLAMATION BUREAU
Owner

By

Date 3-117 94 0 9 01 1
RESP. CNTR.
OBJ. EXP. 0121
APPROVAL [signature]
DATE 10-28-93

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	7096.00	0	1	1	7096.00	7096.00
2.	Provide Water	10 Kgal	172.50	0	0	0	0.00	0.00
3.	Salvage & Replace Coversoil	1 LS	665.00	0	1	1	665.00	665.00
4.	Close Mine Openings	2 Each	462.50	0	2	2	925.00	925.00
5.	Subsidence Backfill	1 LS	3745.00	0	1	1	3745.00	3745.00
6.	Erosion Grading	1 LS	1970.00	0	1	1	1970.00	1970.00
7.	Excavate Air Shaft	1 LS	1190.00	0	1	1	1190.00	1190.00
8.	Neutralize Coal slack	1.13 Acres	2600.00	0	1.13	1.13	2938.00	2938.00
9.	Straw Bales	10 Each	9.00	0	10	10	90.00	90.00
10.	Fertilize, Seed and Mulch	2.93 Acres	1530.00	0	2.93	2.93	4482.90	4482.90
	Change Order Number 1							
1.	Excavate & Backfill Subsidence Hole & Mob.	1 LS	500.00	0	1	1	500.00	500.00
	Change Order Number 2							
1.	Excavate & Backfill Subsidence	26 CY	7.97	0	26	26	207.22	207.22
2.	Backfill Subsidence	54 CY	7.97	0	54	54	430.38	430.38
3.	Backfill Subsidence	3 CY	3.90	0	3	3	11.70	11.70
4.	Additional Backfill Volumes							
	Black Diamond	58 CY	4.44	0	58	58	257.52	257.52
	Ahren	25 CY	4.00	0	25	25	100.00	100.00
	Canyon Creek	50 CY.	3.92	0	50	50	196.00	196.00
	Seven Sisters	87.5 CY	10.00	0	87.5	87.5	875.00	875.00
	Materials on Site (Attach Schedule)	--	--	$	$	--	$0.00	$0.00
	TOTALS					100%	$25,679.72	$25,679.72

ATTACHMENT 4

ANALYSIS OF CONSULTANT COSTS INCURRED

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU
AMR PROJECT NUMBER: DSL-AMRB 93-M03
1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT

DATE OF PREPARATION: NOVEMBER 26, 1993

ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	$23,443.22
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST:	15,450.60
PROJECT ENGINEERING COST:	$38,893.82
CONSTRUCTION COST:	$25,679.72

PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:	
DESIGN ENGINEERING/CONSTRUCTION COST	91.29%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	60.17%
TOTAL ENGINEERING COST/CONSTRUCTION COST	151.46%

REMARKS: Services provided included landowner contact and consent, surveying, basic engineering and reclamation design, bid document preparation, pre-bid and pre-construction meetings, construction staking, contract administration, quantity accounting, full time construction/reclamation inspection and final report preparation and project close-out.

ATTACHMENT 5

AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS

1993 NORTHEASTERN MT. COAL MAINTENANCE PROJECT

LOCATED IN
DANIELS, DAWSON, RICHLAND,
SHERIDAN & WIBAUX COUNTIES, MONTANA

DSL/AMRB 93-MO3

PREPARED FOR:

MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU

STORM WATER CONTROL BEST MANAGEMENT PRACTICES (BMP'S)

SITE NAME	LEGAL	DISTURBED ACRES	TIME LAPSE[1]	SURFACE WATER LOCATION[2]	TEMPORARY SEDIMENTATION & EROSION CONTROL	PERMANENT STABILIZATION
BLACK DIAMOND N. MINE	T13N, R60E, SEC. 10 SE¼	0.10	½	2	MULCH	PERMANENT SEEDING
NORTH WIBAUX SITE	T15N, R59E, SEC. 13 NE¼	0.20	½	0.5	MULCH	PERMANENT SEEDING
MULLENDORE SITE	T16N, R57E, SEC. 30 SW¼	0.10	1	0.2	MULCH	PERMANENT SEEDING
JOHNSON HILL SITE	T20N, R54E, SEC. 31 NE¼	0.80	1	2	MULCH	PERMANENT SEEDING
SCHMIDT SITE	T21N, R54E, SEC. 34 NW¼	0.02	¼	0.2	MULCH	PERMANENT SEEDING
AHREN SITE	T23N, R53E, SEC. 26 NW¼	0.20	½	0.2	MULCH	PERMANENT SEEDING
	T23N, R53E, SEC. 27 NE¼				MULCH	PERMANENT SEEDING
SEVEN SISTERS SITE	T21N, R58E, SEC. 21 SW¼	0.30	½	0.2	MULCH	PERMANENT SEEDING
CANYON CREEK SITE	T21N, R59E, SEC. 17 SW¼	0.20	½	0.1	MULCH	PERMANENT SEEDING
BEMER SITE	T27N, R56E, SEC. 18 SW¼	0.20	½	0.1	MULCH	PERMANENT SEEDING
ANTELOPE II SITE	T34N, R55E, SEC. 16 SE¼	0.20	½	0.3	MULCH	PERMANENT SEEDING
MEYER MINE	T35N, R58E, SEC. 05 NE¼	0.10	½	0.8	MULCH	PERMANENT SEEDING
RAYMOND MINE	T36N, R55E, SEC. 06 NW¼	0.01	½	0.5	MULCH	PERMANENT SEEDING
NIKOLAISEN SITE	T35N, R55E, SEC. 10 SW¼	0.20	½	0.1	MULCH	PERMANENT SEEDING
WHITETAIL CREEK SITE	T36N, R50E, SEC. 24 SE¼	0.20	½	0	MULCH, STRAW BALES	PERMANENT SEEDING
NAY-BUTLER SITE	T36N, R47E, SEC. 20 SE¼	0.10	½	0.1	MULCH	PERMANENT SEEDING
TOTAL ALL SITES		2.93[3]				

The purpose of this project is to reclaim abandoned coal mines. All of the sites addressed herein were previously reclaimed and require some maintenance work. The construction activity will include salvaging and replacing topsoil; providing water for dust control; closing mine adits and shafts; backfilling subsidence, regrading erosional areas, and neutralizing coal stack. Temporary sedimentation and erosion control includes mulching and straw bales. Permanent stabilization includes permanent seeding and fertilizing all disturbed areas.

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The Project Manager is Joel Chavez.

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined in MPDES Stormwater Discharge Permit and Erosion Control Plan. Good housekeeping chores will include as a minimum.

1. To prevent tracking of sediment off-site, prior to leaving the site, all vehicles shall be washed down on-site as determined by the Engineer at such a location as to contain all washed sediment on-site;
2. Fuel, oil, grease and other such materials shall be stored in one location at each site in such a manner as to prevent spillage and prevent contamination of the surrounding soil. All materials shall be stored in a bermed plastic lined storage area with a capacity of 110 percent of the largest container. Absorbent material shall be available on-site for clean up of any spills; and,
3. Lime and fertilizer shall be stored on pallets off the ground or on plastic ground covers and covered with plastic or in other such manner as to prevent spillage and washing from rain water or wind into surrounding soil or off-site.

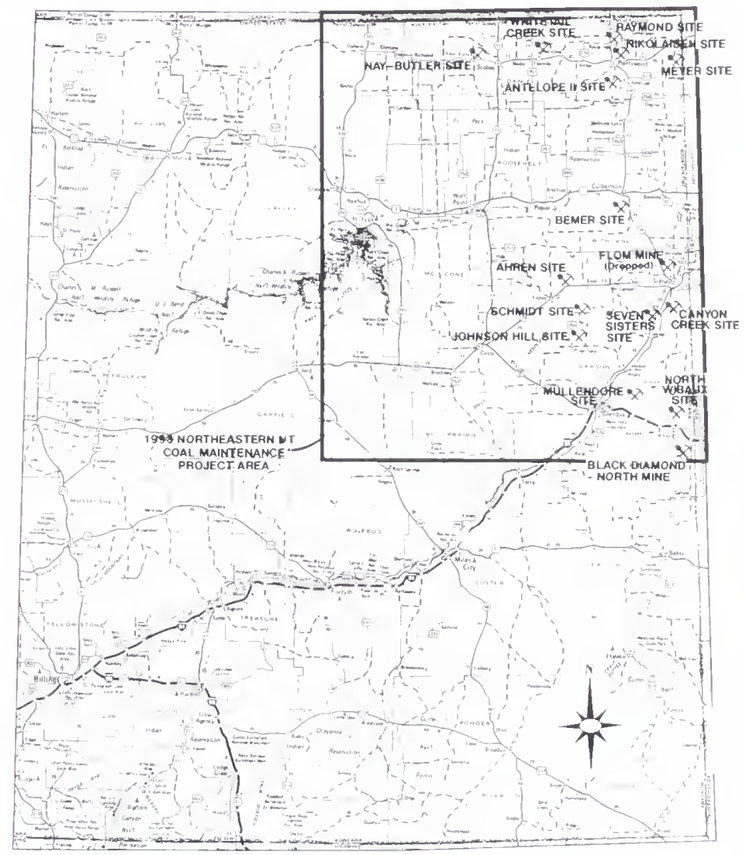
FOOTNOTES

1. Estimated time period in days from the start of on-site reclamation construction until the site is permanently fertilized and seeded (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependent). Temporary stabilization will include mulch and straw bales as outlined above.
2. The distance in miles to the nearest source of potential surface water either flowing or ponded including lakes, rivers, and streams (perennial, intermittent or current dry drainages).
3. 100% of all disturbed areas will be revegetated prior to leaving the site.

LANDOWNER/CONTACT LIST

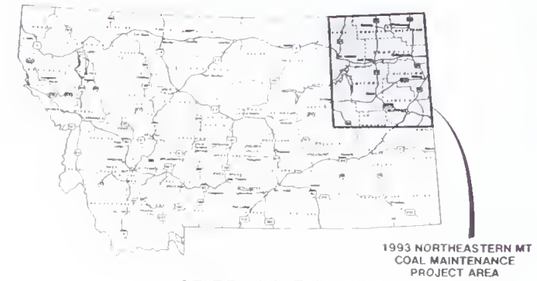
SITE NAME/LOCATION	LANDOWNER/CONTACT
WIBAUX COUNTY	
Black Diamond North Mine NE¼SE¼ Sec. 10, T13N, R60E	Earl Smith Rural Route 198 Wibaux, MT 59353 406-795-2554
North Wibaux Site SE¼NE¼ Sec. 13, T15N, R59E	Mrs. Lanny Peters 708 1st Avenue South Wibaux, MT 59353 406-795-8119
DAWSON COUNTY	
Mullendore Site NE¼SW¼ Sec. 30, T16N, R57E	Donald O. Mullendore 323 Clough St. Glendive, MT 59330 406-365-5314
Johnson Hill Site SE¼NE¼ Sec. 31, T20N, R54E	Lloyd & Kathryn Hosteller 522 Road 524 Bloomfield, MT 59315 406-583-7758
Schmidt Site SW¼NW¼ Sec. 34, T21N, R54E	Warren Schwartz Box 1002 Wolf Point, MT 59201 406-653-1168
SHERIDAN COUNTY	
Antelope I Site SE¼SE¼ Sec. 16, T34N, R55E	MT Department of State Lands Attn: Jeff Hagener 1625 11th Avenue Helena, MT 59620 406-444-2074
	James Cybulski (Lessee) RR 1, Box 1139 Plentywood, MT 59254 406-286-5615
Meyer Mine NW¼NE¼ Sec. 5, T35N, R58E	Donald Shoal (Contact) 518 Glenwood Plentywood, MT 59254 406-765-1475
Raymond Mine SW¼NW¼ Sec. 6, T36N, R55E	Myllen Paulson Box 122 Raymond, MT 59256 406-895-2[illegible]
Nikolaisen Site SE¼SW¼ Sec. 10, T35N, R55E	Lucille C. [illegible] Stewart 15 Ash Drive Weyburn, Sask. S4H0R9 Canada 306-842-8141

SITE NAME/LOCATION	LANDOWNER/CONTACT
DANIELS COUNTY	
Whitetail Creek Site W½SE¼ Sec. 24, T36N, R50E	Mr. Larry Meyers Rural Route 1 Flaxville, MT 59222 406-779-3637
Nay-Butler Site SE¼SE¼ Sec. 20, T36N, R47E	Tade, Inc. Marvin Tade-President Rural Route Scobey, MT 59263 406-783-5514
RICHLAND COUNTY	
Seven Sisters NW¼SW¼ Sec. 21, T21N, R58E	Ed Clemmer Rural Route Crane, MT 59217 406-798-3407
Ahren Mine NW¼NW¼ Sec. 26, T23N, R53E	Rhines Farming Corp. Harold Rhines P.O. Box 19 Sidney, MT 59270 406-774-3465 or 482-3750
NE¼NE¼ Sec. 27, T23N, R53E	Tim Bouchard Route 2, Box 2366 Sidney, MT 59270 406-482-4125
Canyon Creek Site NW¼SW¼ Sec. 17, T21N, R59E	Tod V. & Susan L. Golder Box 4054 Skaar Route Sidney, MT 59270 406-482-2254
Flom Mine (DROPPED) NW¼NW¼ Sec. 6, T23N, R59E LANDOWNER CONSENT WITHDRAWN	Willie & Donna Panasuk Guard Route, Box 134A Sidney, MT 59270 406-798-3683
Bemer Site NE¼SW¼ Sec. 18, T27N, R56E	Howard & Julie Bemer Box 1596 Poplar, MT 59255 406-768-3601



AREA MAP

SCALE IN MILES



STATE LOCATION MAP

MAP SHEET INDEX

ARCHAEOLOGICAL NOTICE

THERE ARE KNOWN ARCHAEOLOGICAL SITES IN THE VICINITY OF SOME OF THE MAINTENANCE SITES WITHIN THIS BID PACKAGE.

ANY ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT WRITTEN PERMISSION FROM THE OWNER.

HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THESE MINE SITES. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN.

THE CONTRACTOR, SUBCONTRACTORS, AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITES SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES.

ENGINEER'S CERTIFICATE

THE MAPS AND PLANS WHICH FOLLOW WERE ORIGINALLY PREPARED UNDER THE DIRECTION OF VARIOUS ENGINEERS AND FIRMS IN ORDER TO COMPLETE SITE RECLAMATION WORK OVER THE LAST 10 YEARS. THESE PLANS WERE NOT ALTERED. THE 1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT USES THE ORIGINAL PLANS WITH THE MAINTENANCE WORK IDENTIFIED IN A DIFFERENT TYPOGRAPHIC STYLE. ONLY THE WORK IDENTIFIED AS MAINTENANCE ON THESE SITE PLANS AND IN THE BID PACKAGE IS TO BE COMPLETED.

I HEREBY CERTIFY THAT THE MAINTENANCE WORK SHOWN ON THESE MAPS AND PLANS WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION. I CANNOT ACCOUNT FOR THE ACCURACY OF THE ORIGINAL SITE PLANS AND THE WORK PERFORMED. LIKEWISE THE ENGINEER WHO STAMPED THE ORIGINAL PLANS ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE WORK ADDITIONS.

William C. Maehl
Montana P.E. No. 5274 PE

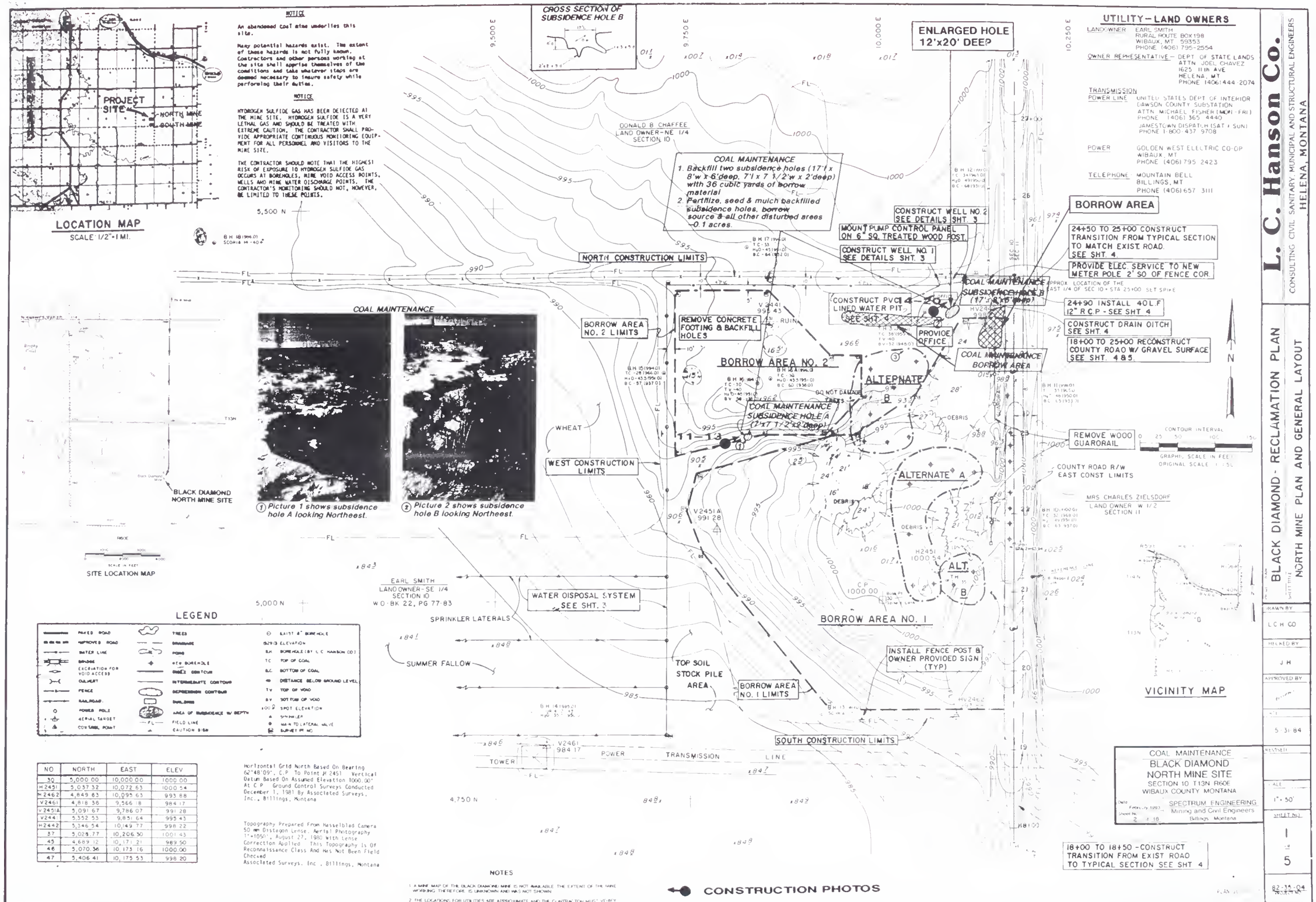
ADDITIONAL INFORMATION PERTAINING TO THESE SITES MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

REDUCED PRINTS ARE APPROX. 1/2 ORIGINAL SCALE

PREPARED BY:

SPECTRUM ENGINEERING
Mining and Civil Engineers

4th Avenue Plaza
1413 4th Avenue North
Billings, Montana 59101

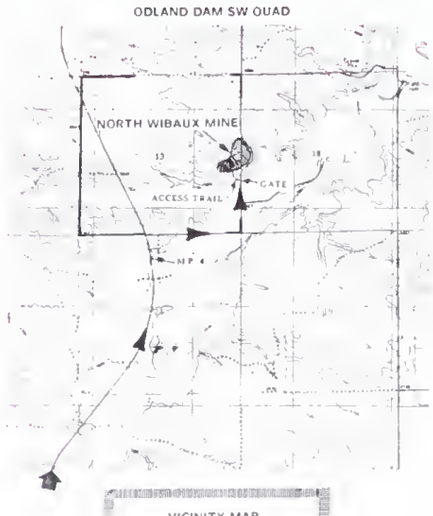


NO	NORTH	EAST	ELEV
30	5,000.00	10,000.00	1000.00
H2451	5,037.32	10,072.63	1000.54
H2462	4,849.83	10,095.63	993.88
V2461	4,818.56	9,566.18	984.17
V2451A	5,091.67	9,786.07	991.28
V2441	5,352.53	9,851.64	995.43
H2442	5,346.54	10,149.77	998.22
37	5,025.77	10,206.50	1001.43
45	4,689.12	10,171.21	989.50
46	5,070.36	10,173.16	1000.00
47	5,406.41	10,173.53	998.20

Horizontal Grid North Based On Bearing 62°48'09", C.P. To Point H 2451. Vertical Datum Based On Assumed Elevation 1000.00' At C.P. Ground Control Surveys Conducted December 1, 1981 By Associated Surveys, Inc., Billings, Montana

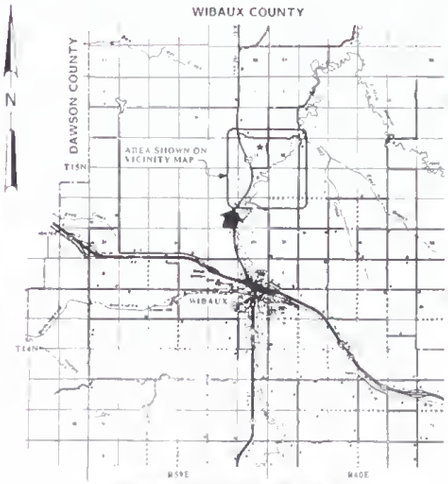
Topography Prepared From Hasselblad Camera 50 mm Distagon Lense. Aerial Photography 1"=1050', August 27, 1980 With Lense Correction Applied. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked
Associated Surveys, Inc., Billings, Montana

AS-BUILT DRAWING AND PHOTO INDEX



VICINITY MAP

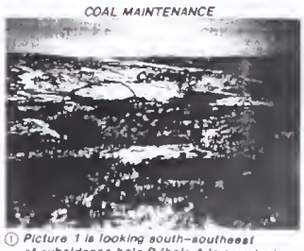
SCALE 1" = 2000'



LOCATION MAP

SCALE 1/2" = 1 MILE

COAL MAINTENANCE



① Picture 1 is looking south-southeast at subsidence hole B (hole A is on edge) and coal slack pile is in the distance

Prepared For
STATE OF MONTANA
DEPT OF STATE LANDS
RECLAMATION DIVISION

LEGEND

	PAVED ROAD		SWAMP
	IMPROVED ROAD		INDEX CONTOUR
	ACCESS ROUTE		INTERMEDIATE CONTOUR
	FENCE		DEPRESSION CONTOUR
BP	BURIED POWER LINE		BUILDING
BT	BURIED TELEPHONE LINE	7'	SUBSIDENCE (& DEPTH)
B N 3	BOREHOLE (& NO.)		FISSURES
	TREES		OPEN ADIT
	DRAINAGE		CLOSED ADIT
M	POND		WASTE PILE
S P	SINGLE PANEL	D P	DOUBLE PANEL

NOTICE

ABANDONED COAL MINE(S) UNDERLIE THIS SITE MANY POTENTIAL HAZARDS EXIST THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT THE OFFICES OF THEIR ENGINEERING REPRESENTATIVE AND SUCH MATERIAL IS AVAILABLE FOR REVIEW BY THOSE INTERESTED IN DOING SO

CONSTRUCT FARM FENCE
LOCATION TO BE STAKED

SALVAGE & REPLACE TOPSOIL
FROM ALL WORK AREAS

CONSTRUCTION PHOTOS

DENOTES CONSTRUCTION LIMITS

TIE PANEL TO EXISTING FENCE

EXISTING FENCE

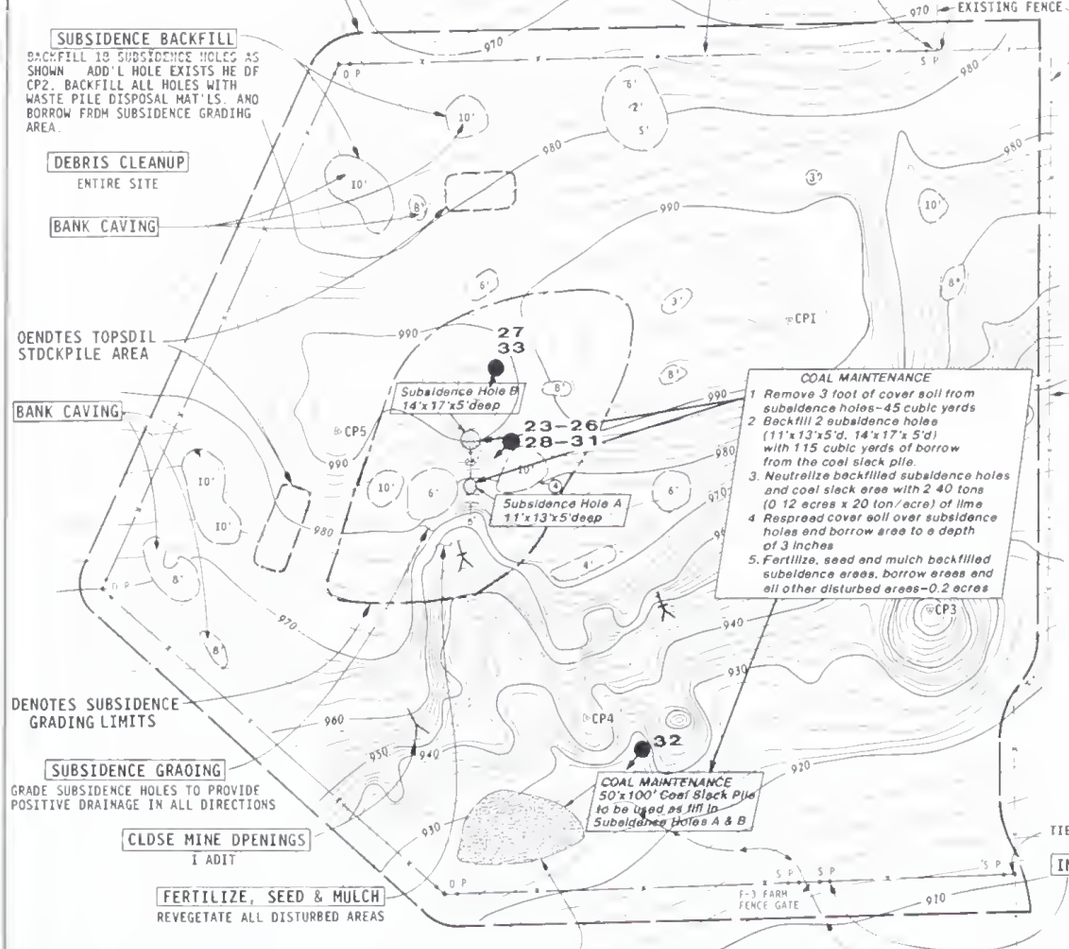
SUBSIDENCE BACKFILL
BACKFILL IN SUBSIDENCE HOLES AS SHOWN ADD'L HOLE EXISTS NE OF CP2. BACKFILL ALL HOLES WITH WASTE PILE DISPOSAL MAT'LS. AND BORROW FROM SUBSIDENCE GRADING AREA.

DEBRIS CLEANUP
ENTIRE SITE

BANK CAVING

DENOTES TOPSOIL STOCKPILE AREA

BANK CAVING



COAL MAINTENANCE

1. Remove 3 foot of cover soil from subsidence holes-45 cubic yards
2. Backfill 2 subsidence holes (11'x13'x5'd, 14'x17'x 5'd) with 115 cubic yards of borrow from the coal slack pile.
3. Neutralize backfilled subsidence holes and coal slack area with 2 40 tons (0 12 acres x 20 ton/acre) of lime
4. Respread cover soil over subsidence holes and borrow area to a depth of 3 inches
5. Fertilize, seed and mulch backfilled subsidence areas, borrow areas and all other disturbed areas-0.2 acres

EXISTING FENCE

NO. WIBAUX - ESTIMATED QUANTITIES

ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	68[illegible] C.Y
CLOSE MINE OPENINGS	
A. ADIT	1 EACH
BANK CAVING	4 HRS.
SUBSIDENCE BACKFILL	3900 C Y
SUBSIDENCE GRADING	1000 C Y
WASTE PILE DISPOSAL	450 C Y
PROVIDE WATER	
COMPACTION*	95 0 MGAL
DUST CONTROL	5 0 MGAL
FERTILIZE, SEED, MULCH	1 75 ACRES
FARM FENCE, TYPE F-3M	1800 L.F
DOUBLE PANEL	3 EACH
SINGLE PANEL	4 EACH
F-3 FARM FENCE GATE	16 L F

* BASED ON ASSUMED FIELD CONDITIONS
DRY WEIGHT - 100 P C F
IN-SITU MOISTURE CONTENT - 6%
OPTIMUM MOISTURE CONTENT - 12%
WATER ITEMS WATER APPLIED TO:
CLOSE MINE OPENINGS, SUBSIDENCE BACKFILL, SUBSIDENCE GRADING & WASTE PILE DISPOSAL

N

50 0 50 100

CONTOUR INTERVAL = 2'

TOPO SURVEY CONDUCTED BY L C HANSON CO ON 9/21/88 WITH LIETZ TOTAL STATION & DATA COLLECTOR

COORDINATE GRID IS BASED ON MAGNETIC NORTH. VERTICAL DATUM BASED ON ASSUMED ELEVATION AT CP1

DENOTES SUBSIDENCE GRADING LIMITS

SUBSIDENCE GRADING
GRADE SUBSIDENCE HOLES TO PROVIDE POSITIVE DRAINAGE IN ALL DIRECTIONS

CLOSE MINE OPENINGS
1 ADIT

FERTILIZE, SEED & MULCH
REVEGETATE ALL DISTURBED AREAS

LANDOWNER

MRS. LANNY PETERS
708 1ST AVE. SOUTH
WIBAUX, MT. 59353
PHONE (406) 795-8119

TIE PANEL TO EXISTING FENCE

INSTALL OWNER PROVIDED SIGN
ATTACH SIGN TO PANEL POST

STATE OF MONTANA
DEPT OF STATE LANDS
RECLAMATION DIVISION

WASTE PILE DISPOSAL
DISPOSE OF COAL WASTE MAT'LS. IN SUBSIDENCE HOLES

ACCESS ROUTE

TO GATED APPROACH - 600 FT

NORTH WIBAUX MINE
E 1/2 SECTION 13, T.15N., R.59E.
WIBAUX COUNTY, MONTANA

CONTROL POINT DATA

POINT	NORTH	EAST	ELEVATION
CP1	2000 000	2000 000	1000 000
CP2	2337 221	2087 156	981 251
CP3	1847 785	2216 068	953 313
CP4	1631 647	2014 272	945 510
CP5	1743 098	1723 753	994 074

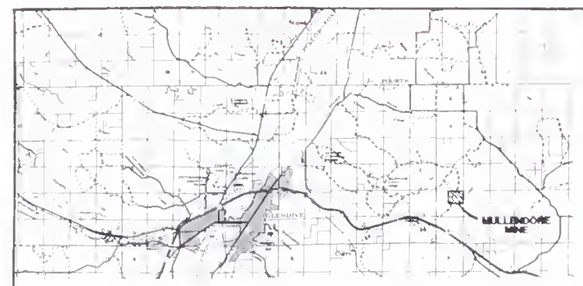
COAL MAINTENANCE
NORTH WIBAUX MINE SITE
SECTION 13 T15N R59E
WIBAUX COUNTY MONTANA
Date February 1992
Sheet No 3 of 10
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings Montana

AS-BUILT DRAWING AND PHOTO INDEX

88 10 09 / 88 10 23	4 - 4	1" = 50'			5/14/89		T D K 1-16-89	L B P

NORTH WIBAUX MINE
GENERAL LAYOUT & SITE PLAN

L. C. Hanson Co.
CONSULTING CIVIL SANITARY MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

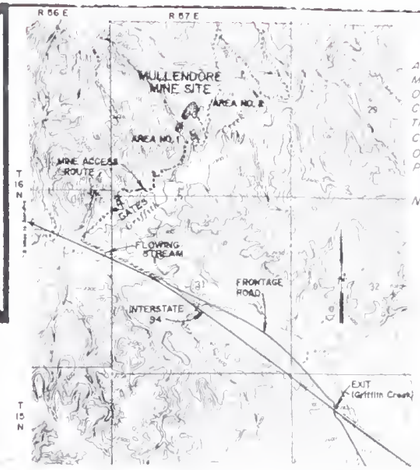


LOCATION MAP
1" = 2.5 Miles

ESTIMATED QUANTITIES AREA NO. 1	
ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	932 C Y
BANK CAVING	3 HOURS
CLOSE MINE OPENING	230 C Y
SUBSIDENCE GRADING	698 C Y
PROVIDE WATER Compaction Dust Control (Access Route)	12.6 MGAL 1.4 MGAL
FERTILIZE, SEED & MULCH	.8 ACRE
CONSTRUCT FENCE (F. 3M) Gate Single Panels Double Panels	99[illegible] L F 16 L F 2 EACH 5 EACH

ESTIMATED QUANTITIES AREA NO. 2	
ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	[illegible] C Y
BANK CAVING	3 HOURS
SUBSIDENCE BACKFILL	730 C Y
SUBSIDENCE GRADING	1048[illegible] Y
PROVIDE WATER Compaction Dust Control (Access Route)	152.6 MGAL 16.6 MGAL
FERTILIZE, SEED & MULCH	3.7 ACRES
CONSTRUCT FENCE (F. 3M) Gate Single Panels Double Panels	[illegible] L F [illegible] 2 [illegible] 5 EACH

QUANTITY BASED ON ESTIMATED APPLICATION RATE OF [illegible] GRADING AND BACKFILL MATERIAL (Assumptions for [illegible] Moisture Content – 8%, Optimum Moisture Content [illegible] Density [illegible] lbs [illegible])



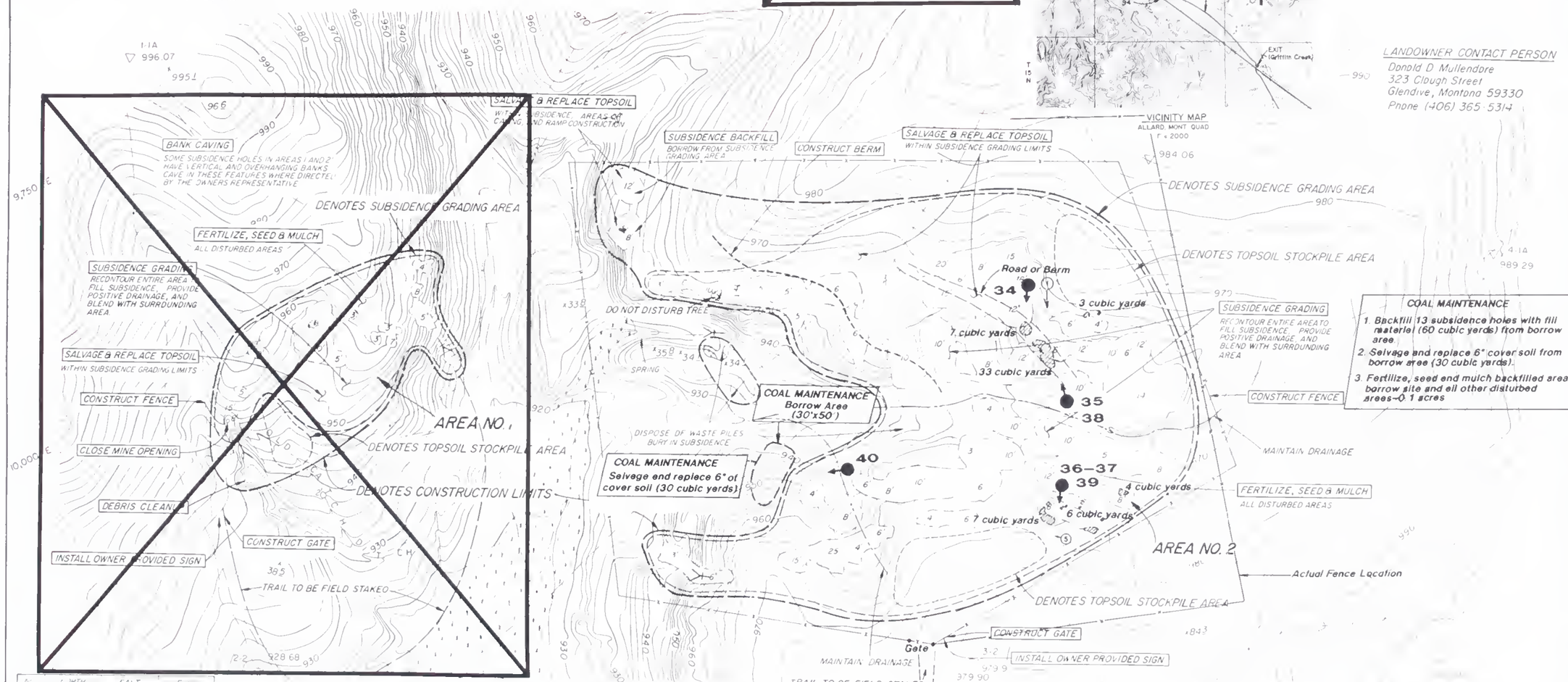
VICINITY MAP
ALLARD, MONT. QUAD
1" = 2000'

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

NOTE ACCESS ROUTE AND WORK AREAS WILL BE FIELD STAKED BY THE OWNERS REPRESENTATIVE

LANDOWNER CONTACT PERSON
Donald D. Mullendore
323 Clough Street
Glendive, Montana 59330
Phone (406) 365-5314



COAL MAINTENANCE

1. Backfill 13 subsidence holes with fill material (60 cubic yards) from borrow area.
2. Salvage and replace 6" cover soil from borrow area (30 cubic yards).
3. Fertilize, seed and mulch backfilled area, borrow site and all other disturbed areas–0.1 acres

No.	NORTH	EAST	ELEV
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	967237	[illegible]
[illegible]	10964.27	963070	970.74
[illegible]	9751	1022937	984.16
[illegible]	11662.21	1072.86	989.28
[illegible]	[illegible]	11613.4	[illegible]
[illegible]	[illegible]	13.217	928.67

Geodetic Grid North Based On Magnetic Bearing
Vertical Datum Based On Assumed Elevation 1000.00' At C.P. Ground Control Surveys Conducted November 21, 1984 By Montana Department of State Lands.

Topography Prepared From Hasselblad Camera, 50 MM. Distagon Lense, Aerial Photography, [illegible] October 24, 1984, With Lense Correction Applied. This Topography Has Not Been Field Checked.
Associated Surveys, Inc., Billings, Montana

CONSTRUCTION PHOTOS

CONTOUR INTERVAL 2'

GRAPHIC SCALE IN FEET
ORIGINAL SCALE 1" = 50'

STATE OF MONTANA
DEPT. OF STATE LANDS
RECLAMATION DIVISION

COAL MAINTENANCE
MULLENDORE SITE
SECTION 30, T16N R57E
DAWSON COUNTY, MONTANA

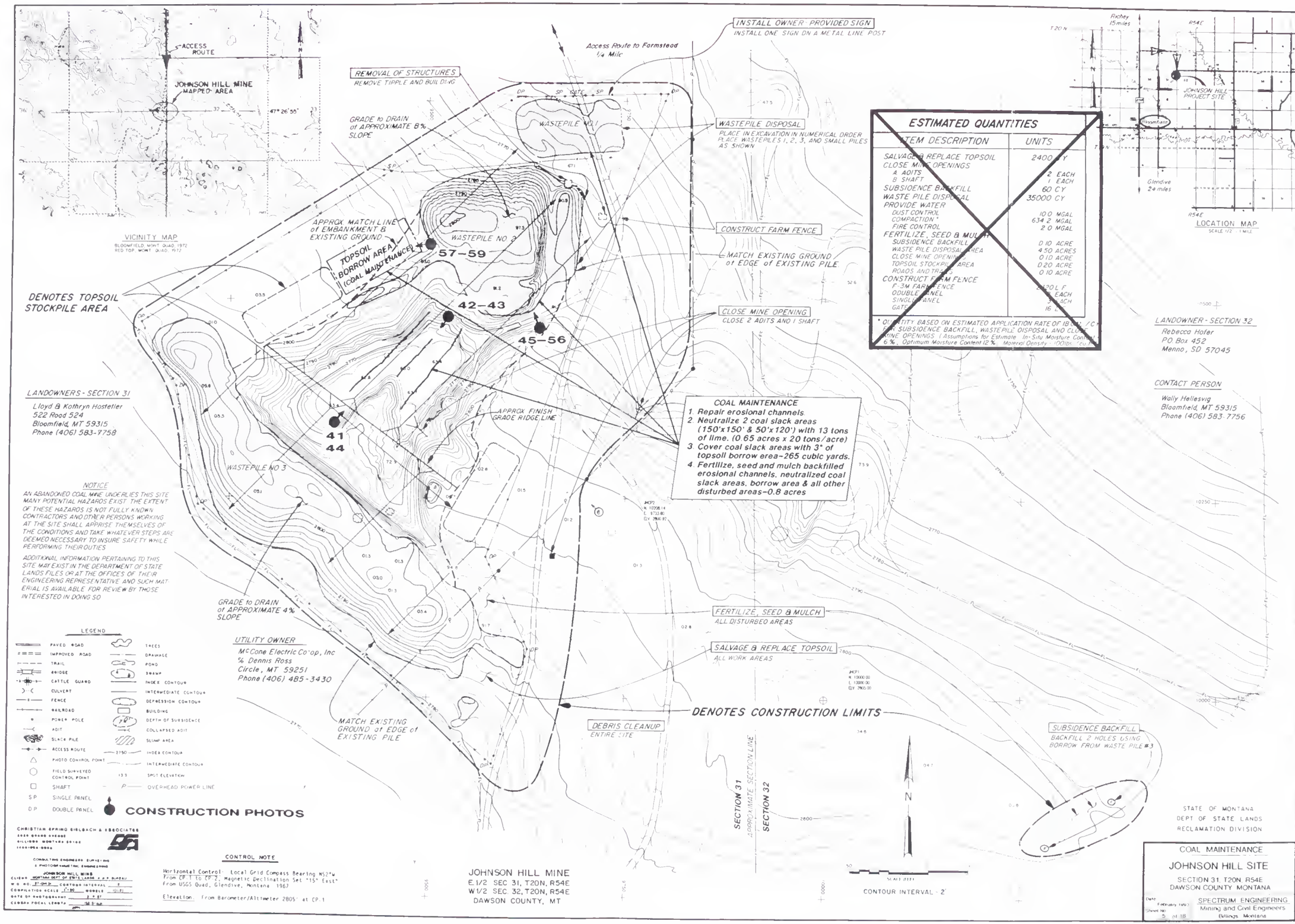
Date February 1993
Sheet No. 4 of 18

SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

L. C. Hanson Co.
CONSULTING CIVIL, SANITARY MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

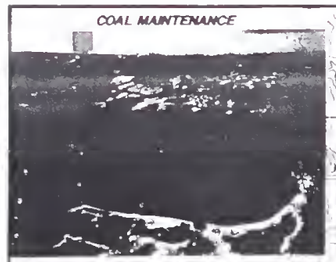
MULLENDORE MINE RECLAMATION PLAN
SITE PLAN AND GENERAL LAYOUT

AS-BUILT DRAWING AND PHOTO INDEX

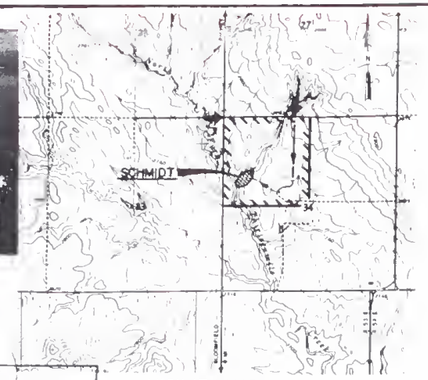


AS-BUILT DRAWING AND PHOTO INDEX

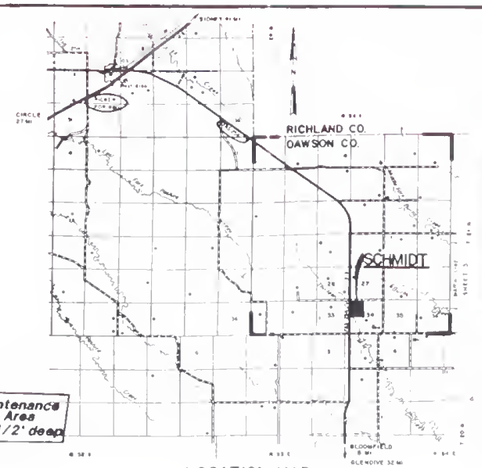
COAL MAINTENANCE



1. Looking east at subsidence hole and AML Reclamation sign.



VICINITY MAP
CLAY BUTTE QUAD
SCALE 1" = 2000'



LOCATION MAP
SCALE: 1/2" = 1MI

COAL MAINTENANCE
1. Backfill air shaft which has subsided with 13 cubic yards of borrow (hole is 7'w x 11'l x 4'd with smaller 1'd, 2' deep hole in bottom.)
2. Fertilize, seed and mulch all disturbed areas–0.02 acres.

Coal Maintenance Borrow Area 25'x25'x1/2' deep

INSTALL OWNER PROVIDED SIGN
METAL SIGN ON NEW WOODEN POST

SALVAGE & REPLACE TOPSOIL
ALL WORK AREAS

DENOTES BORROW AREA

60–62

DEBRIS CLEANUP
ENTIRE SITE

ACCESS ROUTE
300 YARDS TO EXIST ROAD

CLOSE MINE OPENING
TWO AIR SHAFTS AND ONE ADIT

FERTILIZE, SEED & MULCH
ALL DISTURBED AREAS.

DENOTES CONSTRUCTION LIMITS

HWY 254

NORTH FORK THIRTEENMILE CREEK

SCALE (FEET)
CONTOUR INTERVAL - 20'

2700

SEC 33 SEC 34

TO GLENDIVE 35 MILES

LANDOWNER/CONTACT PERSON
Warren Schwartz
P.O. Box 1002
Wolf Point, Mt 59201
Ph. (406) 653-1168

SCHMIDT SITE
NW 1/4, SECTION 34, T21N, R53E
DAWSON COUNTY, MONT

SCHMIDT - ESTIMATED QUANTITIES

ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	60 C.Y.
CLOSE MINE OPENINGS	
A. ADIT	EACH
B. SHAFT	2 EACH
PROVIDE WATER	
COMPACTION*	2.3 MGAL
DUST CONTROL	2.0 MGAL
FERTILIZE, SEED & MULCH	
CLOSE MINE OPENINGS AREA	0.02 ACRE
BORROW AREA	0.03 ACRE
TOPSOIL STOCKPILE AREA	0.03 ACRE
ROADS AND TRAILS	0.02 ACRE

QUANTITY BASED ON ESTIMATED APPLICATION RATE OF 18 GAL/C.Y. FOR SUBSIDENCE GRADING AND SUBSIDENCE BACKFILL, WASTE PILE DISPOSAL, AND/OR CLOSE MINE OPENING MATERIAL. (Assumptions for Estimate. In-Situ Moisture Content - 6%, Optimum Moisture Content - 12%, Material Density - 100 lbs./cu.ft.)

- NOTICE -

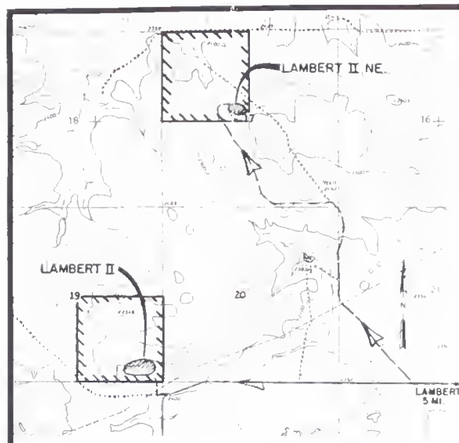
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT THE OFFICES OF THEIR ENGINEERING REPRESENTATIVE AND SUCH MATERIAL IS AVAILABLE FOR REVIEW BY THOSE INTERESTED IN DOING SO.

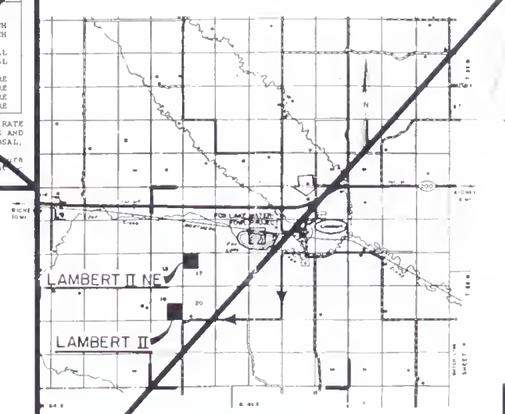
LEGEND

PAVED ROAD
IMPROVED ROAD
TRAIL
BRIDGE
CATTLE GUARD
CULVERT
FENCE
RAILROAD
POWER POLE
ADIT
SLACK PILE
ACCESS ROUTE
TREES
DRAINAGE
POND
SWAMP
INDEX CONTOUR
INTERMEDIATE CONTOUR
DEPRESSION CONTOUR
BUILDING
DEPTH OF SUBSIDENCE
COLLAPSED ADIT
SLUMP AREA
SHAFT

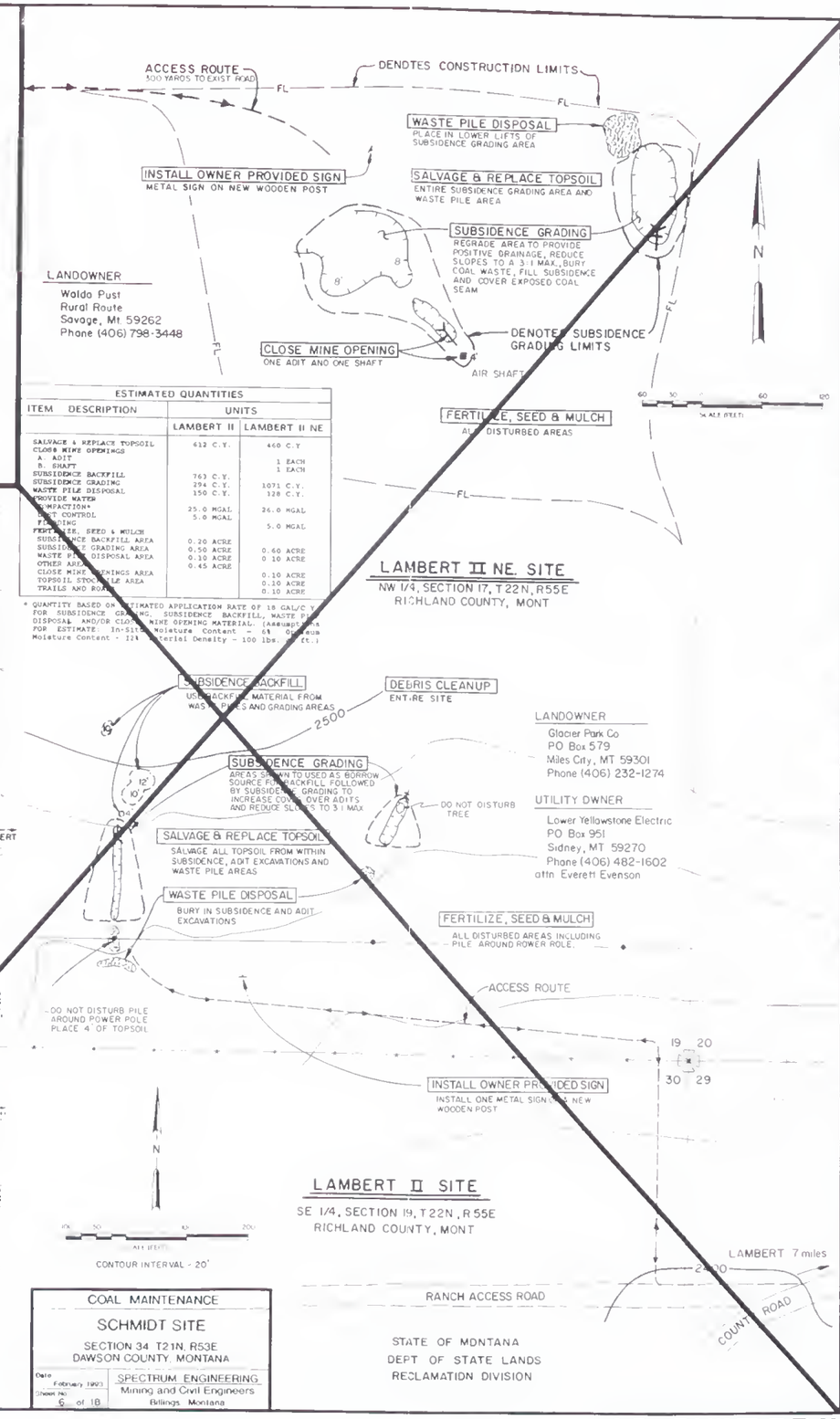
CONSTRUCTION PHOTOS



VICINITY MAP
FOX LAKE MT QUAD
SCALE 1" = 2000'



LOCATION MAP
SCALE: 1/2" = 1MI



LANDOWNER
Waldo Pust
Rural Route
Savage, Mt 59262
Phone (406) 798-3448

ESTIMATED QUANTITIES

ITEM DESCRIPTION	UNITS LAMBERT II	UNITS LAMBERT II NE
SALVAGE & REPLACE TOPSOIL	612 C.Y.	460 C.Y.
CLOSE MINE OPENINGS		
A. ADIT		1 EACH
B. SHAFT		1 EACH
SUBSIDENCE BACKFILL	763 C.Y.	
SUBSIDENCE GRADING	294 C.Y.	1071 C.Y.
WASTE PILE DISPOSAL	150 C.Y.	328 C.Y.
PROVIDE WATER		
COMPACTION*	25.0 MGAL	26.0 MGAL
DUST CONTROL	5.0 MGAL	
FERTILIZING		5.0 MGAL
FERTILIZE, SEED & MULCH		
SUBSIDENCE BACKFILL AREA	0.20 ACRE	
SUBSIDENCE GRADING AREA	0.50 ACRE	0.60 ACRE
WASTE PILE DISPOSAL AREA	0.10 ACRE	0.10 ACRE
OTHER AREA	0.45 ACRE	
CLOSE MINE OPENINGS AREA		0.10 ACRE
TOPSOIL STOCKPILE AREA		0.10 ACRE
TRAILS AND ROADS		0.10 ACRE

* QUANTITY BASED ON ESTIMATED APPLICATION RATE OF 18 GAL/C.Y. FOR SUBSIDENCE GRADING, SUBSIDENCE BACKFILL, WASTE PILE DISPOSAL AND/OR CLOSE MINE OPENING MATERIAL. (Assumptions for Estimate. In-Situ Moisture Content - 6%, Optimum Moisture Content - 12%, Material Density - 100 lbs./cu.ft.)

LAMBERT II NE. SITE
NW 1/4, SECTION 17, T22N, R55E
RICHLAND COUNTY, MONT

SUBSIDENCE BACKFILL
USE BACKFILL MATERIAL FROM WASTE PILE AND GRADING AREAS

DEBRIS CLEANUP
ENTIRE SITE

SUBSIDENCE GRADING
AREAS SHOWN TO USED AS BORROW SOURCE FOR BACKFILL FOLLOWED BY SUBSIDENCE GRADING TO INCREASE COVER OVER ADITS AND REDUCE SLOPES TO 3:1 MAX

DO NOT DISTURB TREE

SALVAGE & REPLACE TOPSOIL
SALVAGE ALL TOPSOIL FROM WITHIN SUBSIDENCE, ADIT EXCAVATIONS AND WASTE PILE AREAS

WASTE PILE DISPOSAL
BURY IN SUBSIDENCE AND ADIT EXCAVATIONS

FERTILIZE, SEED & MULCH
ALL DISTURBED AREAS INCLUDING PILE AROUND POWER POLE.

ACCESS ROUTE

DO NOT DISTURB PILE AROUND POWER POLE PLACE 4' OF TOPSOIL

INSTALL OWNER PROVIDED SIGN
INSTALL ONE METAL SIGN ON NEW WOODEN POST

2500

LANDOWNER
Glacier Park Co
PO Box 579
Miles City, MT 59301
Phone (406) 232-1274

UTILITY OWNER
Lower Yellowstone Electric
PO Box 951
Sidney, MT 59270
Phone (406) 482-1602
attn Everett Evenson

LAMBERT II SITE
SE 1/4, SECTION 19, T22N, R55E
RICHLAND COUNTY, MONT

CONTOUR INTERVAL - 20'

LAMBERT 7 miles

RANCH ACCESS ROAD

COUNTY ROAD

STATE OF MONTANA
DEPT OF STATE LANDS
RECLAMATION DIVISION

COAL MAINTENANCE
SCHMIDT SITE
SECTION 34 T21N, R53E
DAWSON COUNTY, MONTANA

Date: February 1993
Sheet No: 6 of 18

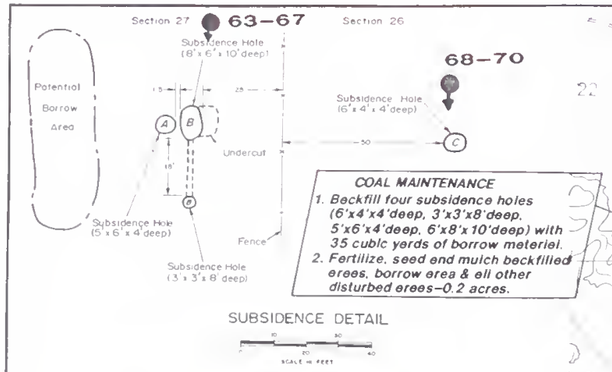
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

L. C. Hanson Co.
CONSULTING, CIVIL, SANITARY, MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

PROJECT NAME: SCHMIDT, ~~LAMBERT I & II~~ NE RECLAMATION PLAN
SHEET TITLE: GENERAL LAYOUT AND SITE PLAN

DRAWN BY: L B P
CHECKED BY: T D K 2-1-88
APPROVED BY:
DATE: 7/8/93
REVISED:
SCALE: AS SHOWN
SHEET NO: 5 / 5
87-10-24
87-10-28

AS–BUILT DRAWING AND PHOTO INDEX



SUBSIDENCE DETAIL

COAL MAINTENANCE

1. Backfill four subsidence holes (6'x4'x4'deep, 3'x3'x8'deep, 5'x6'x4'deep, 6'x8'x10'deep) with 35 cubic yards of borrow material.
2. Fertilize, seed and mulch backfilled areas, borrow area & all other disturbed areas–0.2 acres.

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER

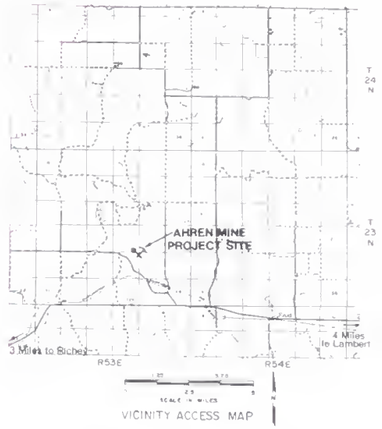
STATE LOCATION MAP

LANDOWNER AND CONTACT
NW¼NW¼ SECTION 26

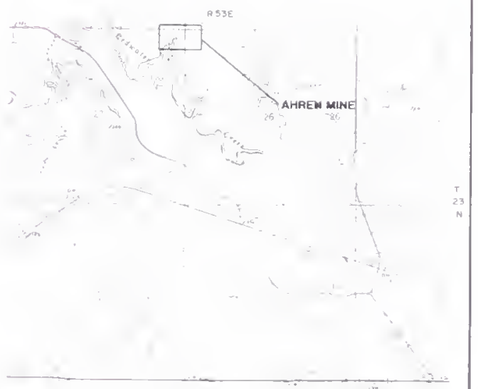
RHINES FARMING CORP
HAROLD RHINES
BOX 19
SIDNEY, MT 59270
PHONE: (406) 774-3465
482-3750

LANDOWNER AND CONTACT
NE¼NE¼ SECTION 27

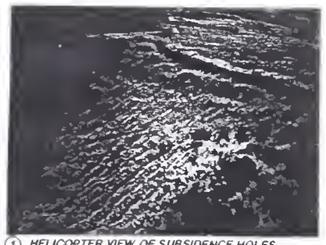
TIM BOUCHARD
ROUTE 2 BOX 2366
SIDNEY, MT 59270
PHONE: (406) 482-4125



VICINITY ACCESS MAP

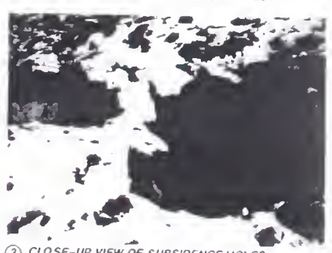


SITE LOCATION MAP

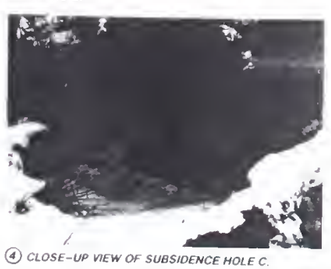


① HELICOPTER VIEW OF SUBSIDENCE HOLES A AND B LOOKING TO THE EAST.

② HELICOPTER VIEW OF SUBSIDENCE HOLES A, B AND C LOOKING TO THE SOUTHWEST



③ CLOSE-UP VIEW OF SUBSIDENCE HOLES A AND B.



④ CLOSE-UP VIEW OF SUBSIDENCE HOLE C.

LEGEND

POSTURE NUMBER AND ORIENTATION

SP1 SUBSIDENCE POINT NUMBER (S) DEPTH

DRAINAGE

OPEN ADIT

CONSTRUCTION PHOTOS

Vertical Datum Based On USGS 7½ Quadrangle Rustler Lake, MT

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

NOTICE

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COAL MAINTENANCE

AHREN MINE SITE

SECTIONS 26 & 27 T23N R53E
RICHLAND COUNTY MONTANA

Date February 1993
Sheet No 7 of 18

SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings Montana

SITE PLAN AND GENERAL LAYOUT

AHREN MINE SITE

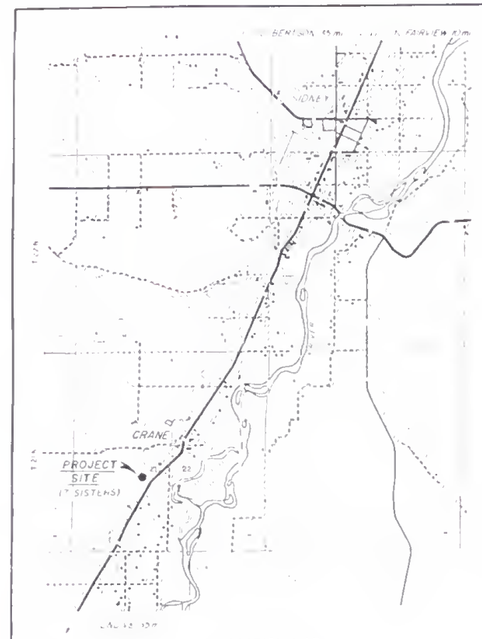
SECTIONS 26 & 27 T23N R53E
RICHLAND COUNTY MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU RECLAMATION DIVISION

DATE February 1993
DRAWN BY DLO
CHECKED BY MCM
APPROVED BY
REVISIONS
NO. DATE BY

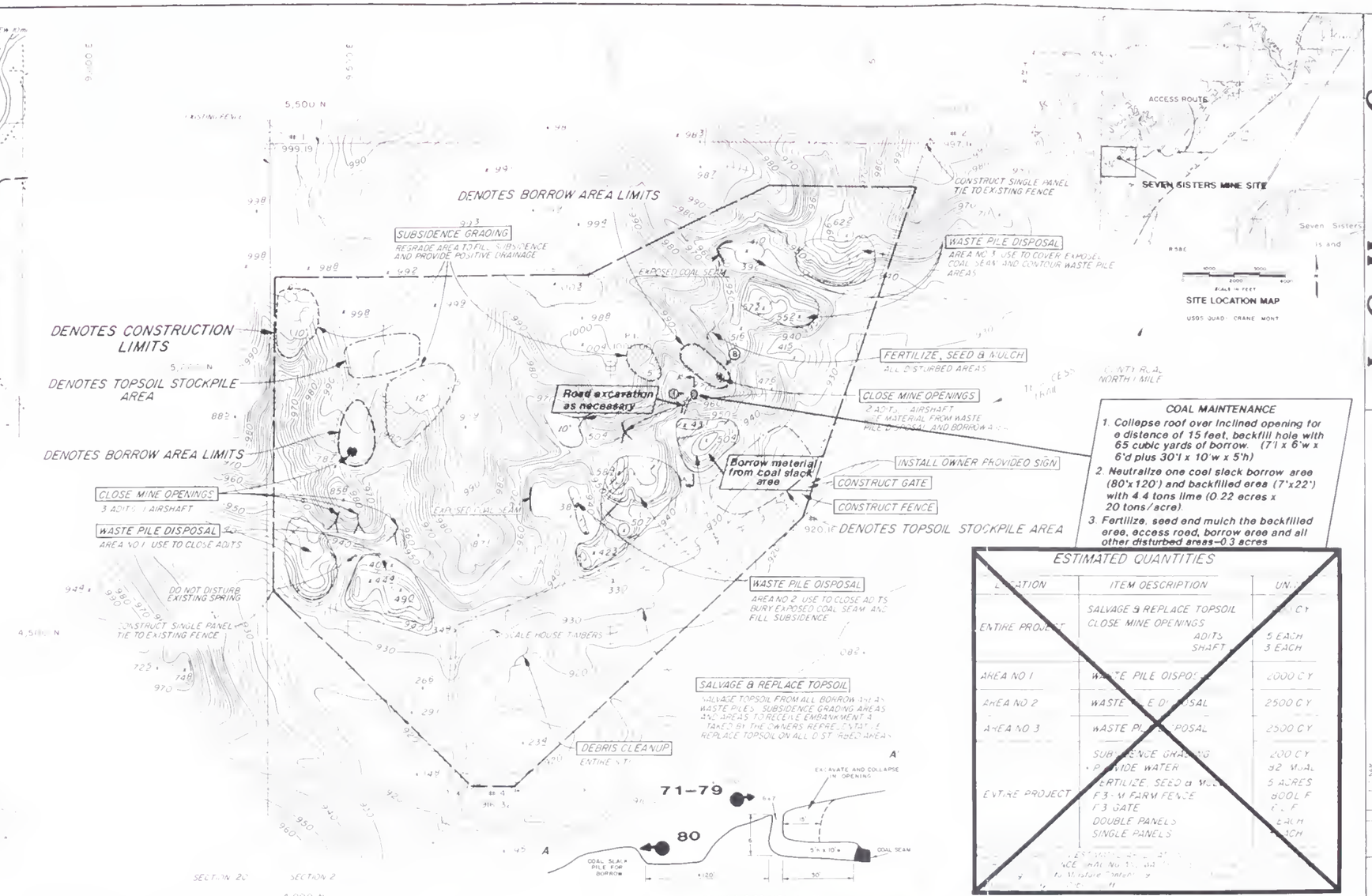
SPECTRUM ENGINEERING
Mining and Civil Engineers
1415 4th AVE NORTH
BILLINGS, MONTANA

AS-BUILT DRAWING AND PHOTO INDEX



LOCATION MAP

SCALE 1/2" = 1 MI



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NOTE: ONE 1 AIRSHAFT EXISTS TO THE NORTH OF THE MAPPING. THIS SHAFT IS TO BE CLOSED AND IS INCLUDED IN THE ESTIMATED QUANTITIES.

NOTE: BORROW AREA LIMITS AND WASTE PILE DISPOSAL AREAS WILL BE FIELD STAKED. WHERE MORE THAN ONE WASTE PILE DISPOSAL AREA IS SPECIFIED, USE THOSE PORTIONS NECESSARY TO CLOSE ADITS, FILL SUBSIDENCE, BURY EXPOSED COAL SEAMS AND ESTIMATED VOLUMES FOR SLOPES WILL BE ADJUSTED.

COAL MAINTENANCE

1. Collapse roof over inclined opening for a distance of 15 feet, backfill hole with 65 cubic yards of borrow. (7'l x 6'w x 6'd plus 30'l x 10'w x 5'h)
2. Neutralize one coal slack borrow area (80'x120') and backfilled area (7'x22') with 4.4 tons lime (0.22 acres x 20 tons/acre).
3. Fertilize, seed and mulch the backfilled area, access road, borrow area and all other disturbed areas—0.3 acres

ESTIMATED QUANTITIES

LOCATION	ITEM DESCRIPTION	UNITS
ENTIRE PROJECT	SALVAGE & REPLACE TOPSOIL	CY
	CLOSE MINE OPENINGS	
	ADITS	5 EACH
	SHAFT	3 EACH
AREA NO 1	WASTE PILE DISPOSAL	2000 CY
AREA NO 2	WASTE PILE DISPOSAL	2500 CY
AREA NO 3	WASTE PILE DISPOSAL	2500 CY
ENTIRE PROJECT	SUBSIDENCE GRADING	200 CY
	PROVIDE WATER	32 MGAL
	FERTILIZE, SEED & MULCH	5 ACRES
	F3-M FARM FENCE	600 LF
	F3 GATE	EA
	DOUBLE PANELS	EACH
	SINGLE PANELS	EACH

ESTIMATED QUANTITIES ARE BASED ON NO 1 DIESEL FUEL, Moisture Content

LANDOWNER CONTACT PERSON

Greg Wyman
PO Box 3
Crane, Montana 59217
Phone (406) 482-6683

LANDOWNER CONTACT PERSON

Ed Clemmer
Rural Route
Crane, Montana 59217
Phone (406) 798-3417

N	NORTH	EAST	ELEV
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]

CONSTRUCTION PHOTOS

COAL MAINTENANCE

1 Entrance to opening showing unconsolidated cover.

STATE OF MONTANA
DEPT OF STATE LANDS
RECLAMATION DIVISION

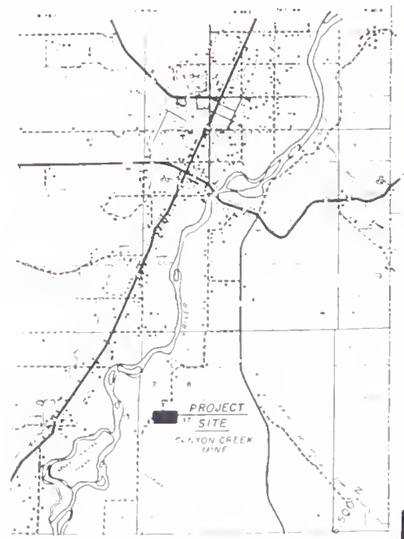
SEVEN SISTERS MINE
Vol 4 Vol 3 Vol 2 Vol 1 Sec 21
T21N R58E
RICHLAND COUNTY, MONTANA
ASSOCIATED SURVEYS
ground & aerial
BILLINGS, MONTANA

COAL MAINTENANCE
SEVEN SISTERS MINE
SECTION 21, T21N R58E
RICHLAND COUNTY MONTANA
Date February 1993
Sheet No 8 of 18
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings Montana

L. C. Hanson Co.
CIVIL & ENV. SANITARY, MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

7 SISTERS MINE — RECLAMATION PLAN
SITE PLAN AND GENERAL LAYOUT

AS-BUILT DRAWING AND PHOTO INDEX



① Picture 1 shows the 3 subsidence holes.

NOTICE

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SITE LOCATION MAP

COAL MAINTENANCE

1. Backfill 3 subsidence holes (12'l x 14'w x 7'd, 5'l x 8'w x 5'd, and 5'l x 3'w x 5'd plus undercuts) with 70 cubic yards of borrow material.
2. Salvage and replace 6" cover soil from borrow area (30 cubic yards).
3. Fertilize, seed and mulch backfilled areas, borrow sites & all other disturbed areas–0.2 acres.

NOTE: ACCESS TO BE FIELD STAKED

LANDOWNER

ALL SEC 17 & E1/2 NE1/4 & S1/2 SEC 18

TOD V. & SUSAN L. GORDER
PO BOX 4054, SKAAR ROUTE
SIDNEY, MT. 59270
PHONE (406)482-2254

NO	NORTH	EAST	ELEV
P1	5,000.00	10,000.00	1000.00
1	4,564.07	10,479.46	988.17
2	5,706.05	10,755.77	904.55
3	6,342.22	9,799.73	936.87
4	6,776.44	8,961.16	900.15
5	7,697.82	8,154.16	908.05
6	5,744.02	8,788.88	932.18

Coordinate Grid North Based On Magnetic Bearings. Vertical Datum Based On Assumed Elevation 1000.00 At C.P. Assumed Control Surveys Conducted July 14, 1981 and September 11, 1981 By Montana Department of State Lands.

Topography Prepared From Hasselblad Camera 50 MM. Distagon Lens. Aerial Photography 1" = 1000', July 14, 1981 with Lense Correction Applied. The Topography Has Not Been Field Checked. Associated Surveys, Inc. Billings, Montana

LEGEND

PAVED ROAD
IMPROVED ROAD
TRAIL
BRIDGE
CATTLE GUARD
CULVERT
FENCE
RAILROAD
POWER POLE
TREES
DRAINAGE
POND
SWAMP
INDEX CONTOUR
INTERMEDIATE CONTOUR
DEPRESSION CONTOUR
BUILDING
DEPTH OF SUBSIDENCE

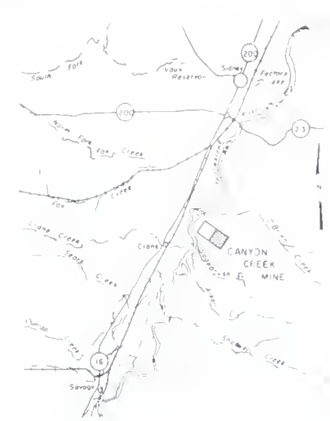
CONSTRUCTION PHOTOS

81–91

COAL MAINTENANCE DETAIL

CONTOUR INTERVAL 4

GRAPHIC SCALE IN FEET
ORIGINAL SCALE 1" = 100'



COAL MAINTENANCE
CANYON CREEK MINE SITE
SECTION 17, T21N, R59E
RICHLAND COUNTY, MONTANA
Date: February 1993
Sheet No. 9 of 18
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

STATE OF MONTANA
DEPT. OF STATE LANDS
RECLAMATION DIVISION

CANYON CREEK MINE
SEC 17 & 18, T21N, R59E
RICHLAND COUNTY, MONTANA

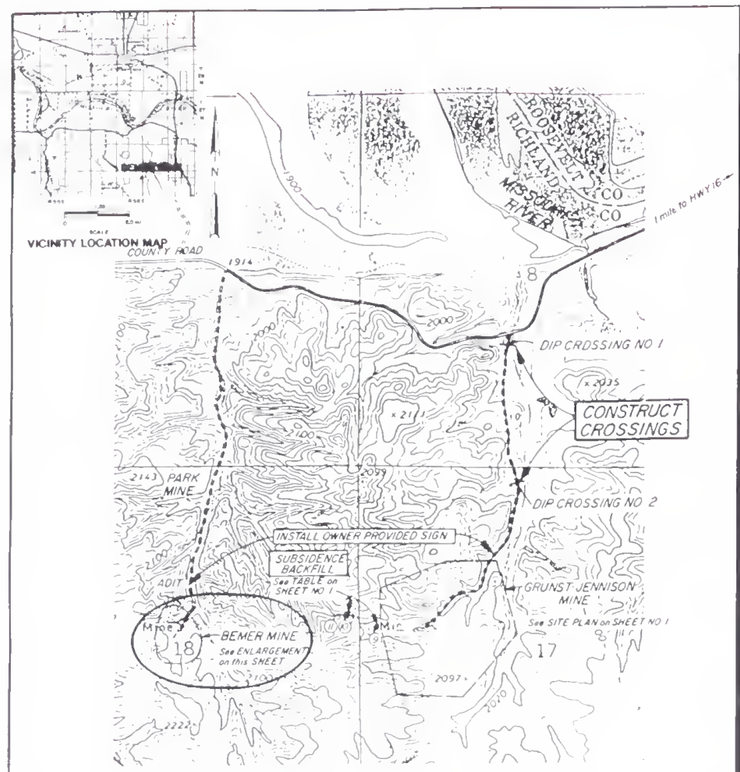
ASSOCIATED SURVEYS INC
land & aerial
BILLINGS, MONTANA

L. C. Hanson Co.
CONSULTING, CIVIL, SANITARY, MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

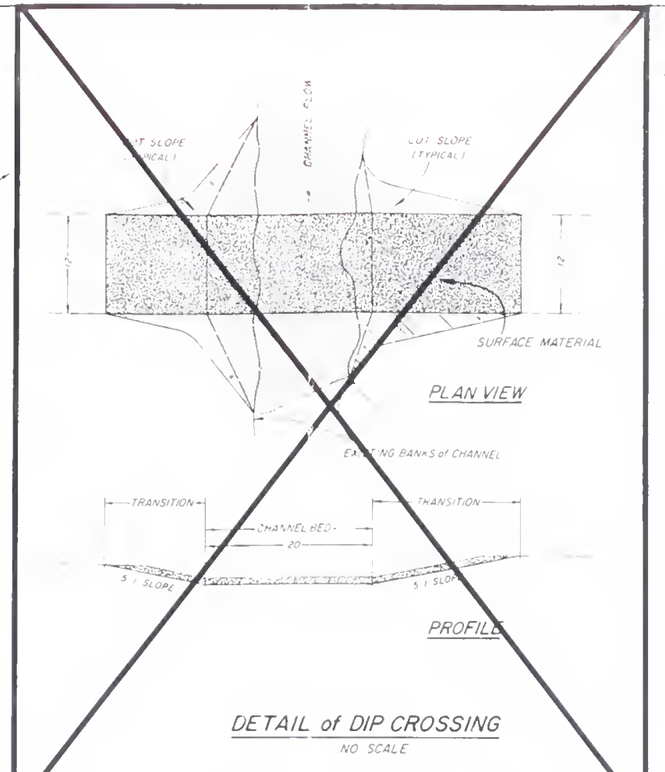
PROJECT NAME: CANYON CREEK MINE — RECLAMATION PLAN
SHEET TITLE: SITE PLAN AND GENERAL LAYOUT

DRAWN BY: A.R. / L.B. Peterson
CHECKED BY: TDK 6-6-85 / WJB 8-1-85
APPROVED BY: 6-6-85
DATE:
REVISED: 8-1-85
SCALE: 1" = 100'
SHEET NO. 2 OF 4
PA 10-09 / PROJECT NO.

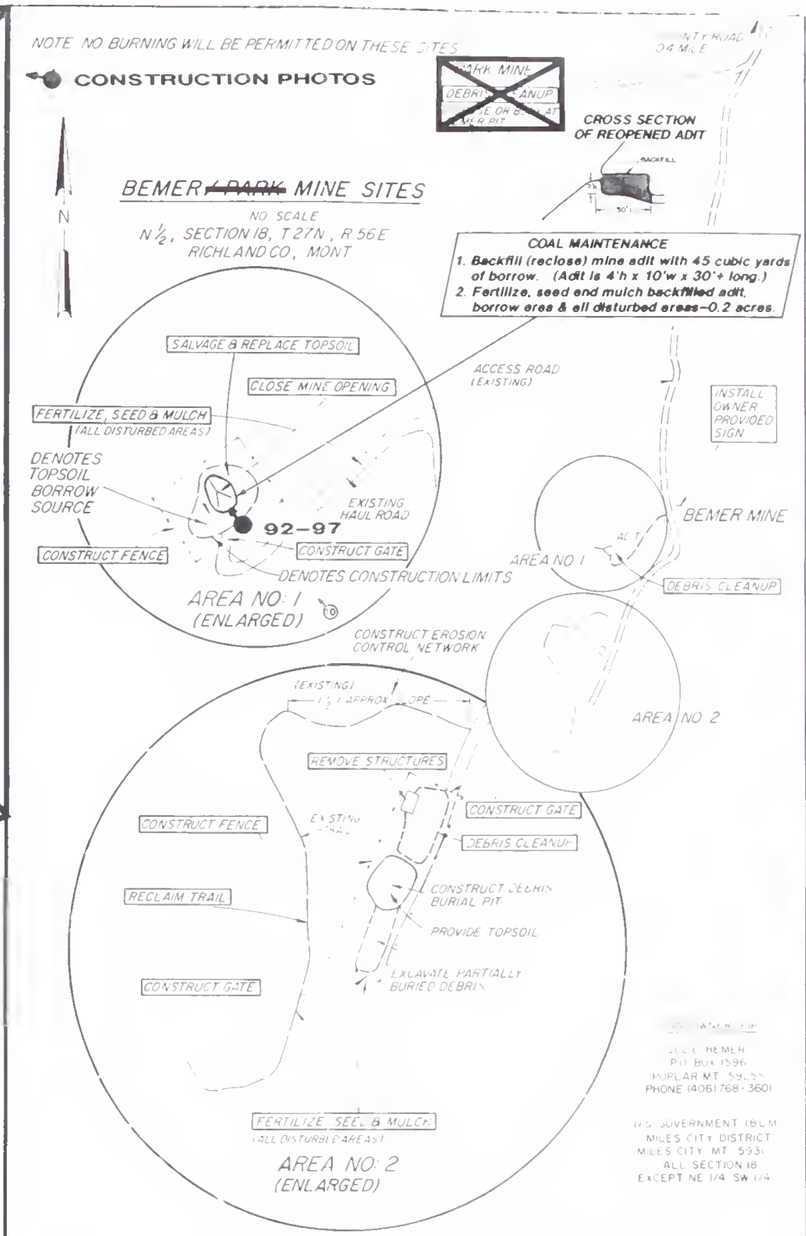
AS–BUILT DRAWING
AND PHOTO INDEX

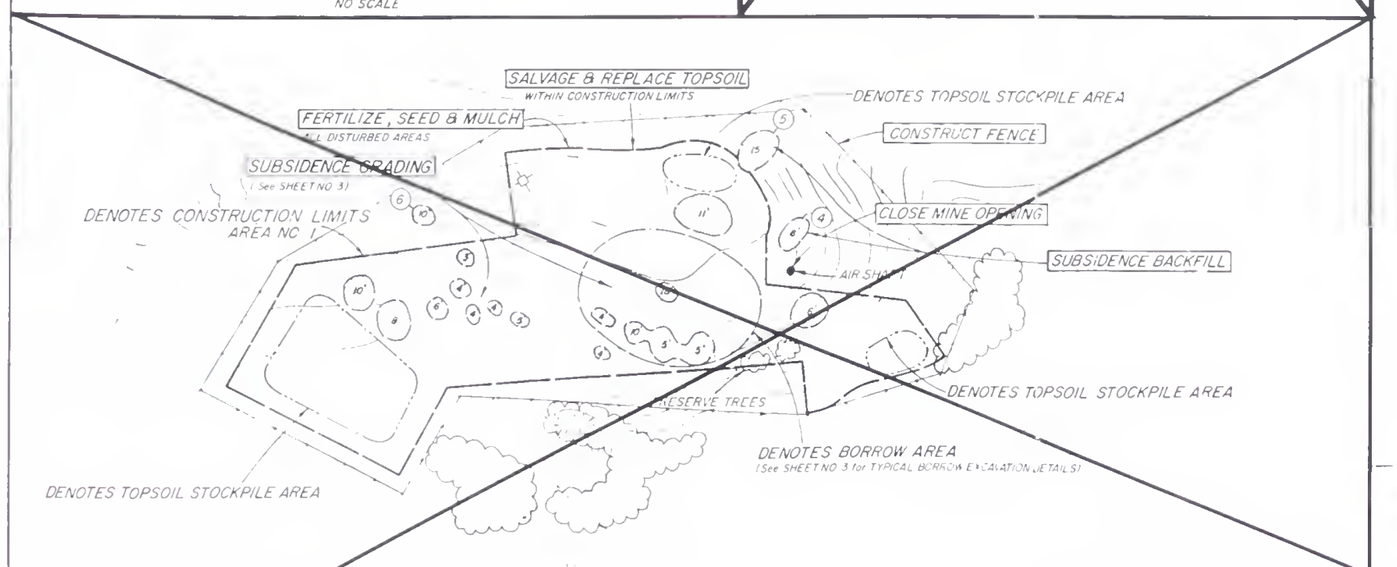


MINE ACCESS PLAN
NO SCALE



DETAIL of DIP CROSSING
NO SCALE





DETAIL of CONSTRUCTION AREA NO 1
GRUNST-JENNISON MINE (SEE SHEET NO 1)
SCALE 1" = 60'

COAL MAINTENANCE
BEMER MINE SITE
SECTION 18, T27N, R56E
RICHLAND COUNTY, MONTANA

Date February 1990	SPECTRUM ENGINEERING Mining and Civil Engineers Billings, Montana
Sheet No. 11 of 18	

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

ESTIMATED PLAN QUANTITIES for GRUNST-JENNISON & BEMER/PARK MINES

WORK ITEM	CONSTRUCT CROSSING	DEBRIS CLEANUP	PROVIDE TOPSOIL	SALVAGE & REPLACE TOPSOIL	SUBSIDENCE GRADING	SUBSIDENCE BACKFILL	[illegible]	[illegible]	[illegible]	[illegible]
GRUNST JENNISON MINE	120 cu yd	Bury & Existing Subsidence	505 cu yd	340 cu yd	[illegible]	[illegible] cu yd	[illegible]	[illegible]	[illegible] cu yd	[illegible]
BEMER/ PARK MINES	—	[illegible] cu yd	30 cu yd	10 yd	—	—	[illegible]	[illegible]	10 cu yd	[illegible]

L. C. Hanson Co.
CONSULTING, CIVIL, SANITARY MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

~~CONSTRUCT PERIMETER FENCE~~
~~CONSTRUCT EROSION CONTROL~~
~~BEMER PARK SITE DETAILS~~

[illegible] HEMER
P.O. BOX 1596
POPLAR MT 59255
PHONE (406) 768-3601

U.S. GOVERNMENT (BLM
MILES CITY DISTRICT
MILES CITY MT 5931
ALL SECTION 18
EXCEPT NE 1/4 SW 1/4

L. B. Peterson

DRAWN BY

15 85

AS SHOWN

DWG NO
2
3

AS-BUILT DRAWING AND PHOTO INDEX

SITE LOCATION MAP

VICINITY LOCATION MAP

ANTELOPE II - ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	75 C.Y.
CLOSE MINE OPENINGS A. ADITS	2 EACH
SUBSIDENCE GRADING	613 C.Y.
WASTE PILE DISPOSAL	35 C.Y.
PROVIDE WATER*	1.0 MGAL
FERTILIZE, SEED, MULCH	0.80 ACRE

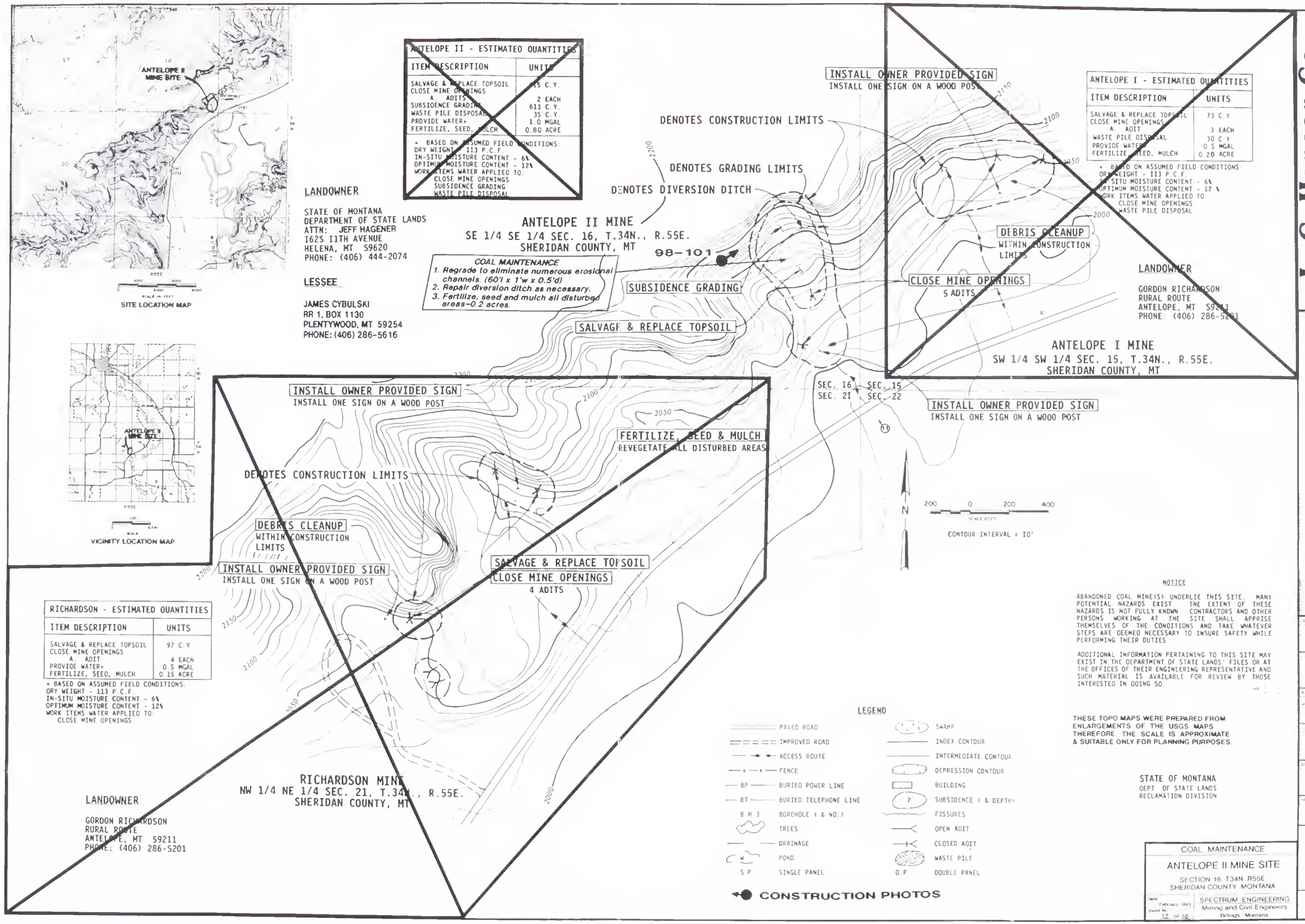
* BASED ON ASSUMED FIELD CONDITIONS:
DRY WEIGHT - 113 P.C.F.
IN-SITU MOISTURE CONTENT - 6%
OPTIMUM MOISTURE CONTENT - 12%
WORK ITEMS WATER APPLIED TO:
CLOSE MINE OPENINGS
SUBSIDENCE GRADING
WASTE PILE DISPOSAL

LANDOWNER

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ATTN: JEFF HAGENER
1625 11TH AVENUE
HELENA, MT 59620
PHONE: (406) 444-2074

LESSEE

JAMES CYBULSKI
RR 1, BOX 1130
PLENTYWOOD, MT 59254
PHONE: (406) 286-5616



RICHARDSON - ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	97 C.Y.
CLOSE MINE OPENINGS A. ADIT	4 EACH
PROVIDE WATER*	0.5 MGAL
FERTILIZE, SEED, MULCH	0.15 ACRE

* BASED ON ASSUMED FIELD CONDITIONS:
DRY WEIGHT - 113 P.C.F.
IN-SITU MOISTURE CONTENT - 6%
OPTIMUM MOISTURE CONTENT - 12%
WORK ITEMS WATER APPLIED TO:
CLOSE MINE OPENINGS

LANDOWNER

GORDON RICHARDSON
RURAL ROUTE
ANTELOPE, MT 59211
PHONE: (406) 286-5201

LEGEND

	PAVED ROAD		SWAMP
	IMPROVED ROAD		INDEX CONTOUR
	ACCESS ROUTE		INTERMEDIATE CONTOUR
	FENCE		DEPRESSION CONTOUR
BP	BURIED POWER LINE		BUILDING
BT	BURIED TELEPHONE LINE	7	SUBSIDENCE (& DEPTH)
B.H. 3	BOREHOLE (& NO.)		FISSURES
	TREES		OPEN ADIT
	DRAINAGE		CLOSED ADIT
W	POND		WASTE PILE
S.P.	SINGLE PANEL	D.P.	DOUBLE PANEL

CONSTRUCTION PHOTOS

NOTICE

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STATE OF MONTANA
DEPT. OF STATE LANDS
RECLAMATION DIVISION

COAL MAINTENANCE
ANTELOPE II MINE SITE
SECTION 16, T34N, R55E
SHERIDAN COUNTY, MONTANA

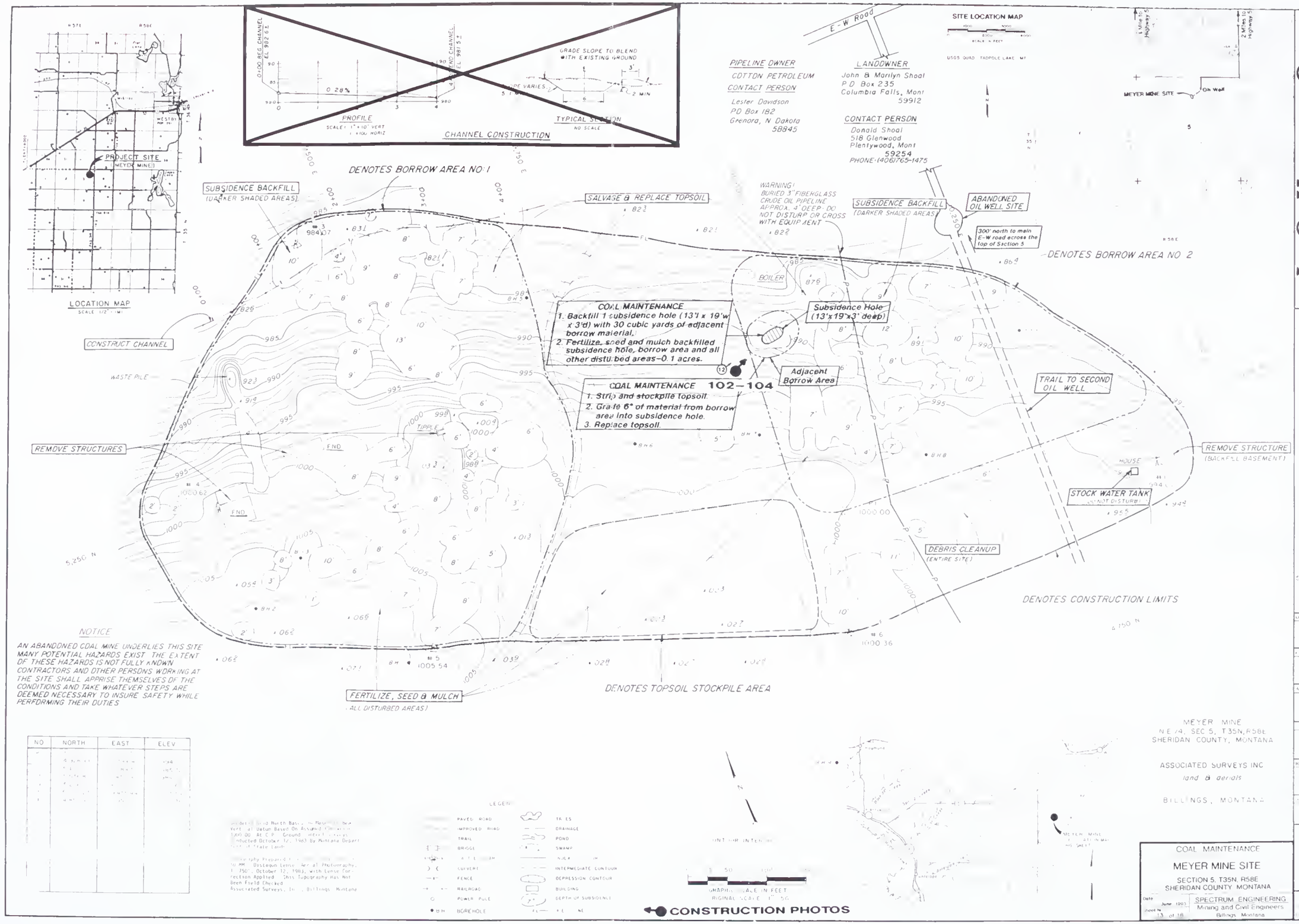
Date: February 1993
Sheet No. 12 of 18
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

L. C. Hanson Co.
CONSULTING CIVIL SANITARY MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

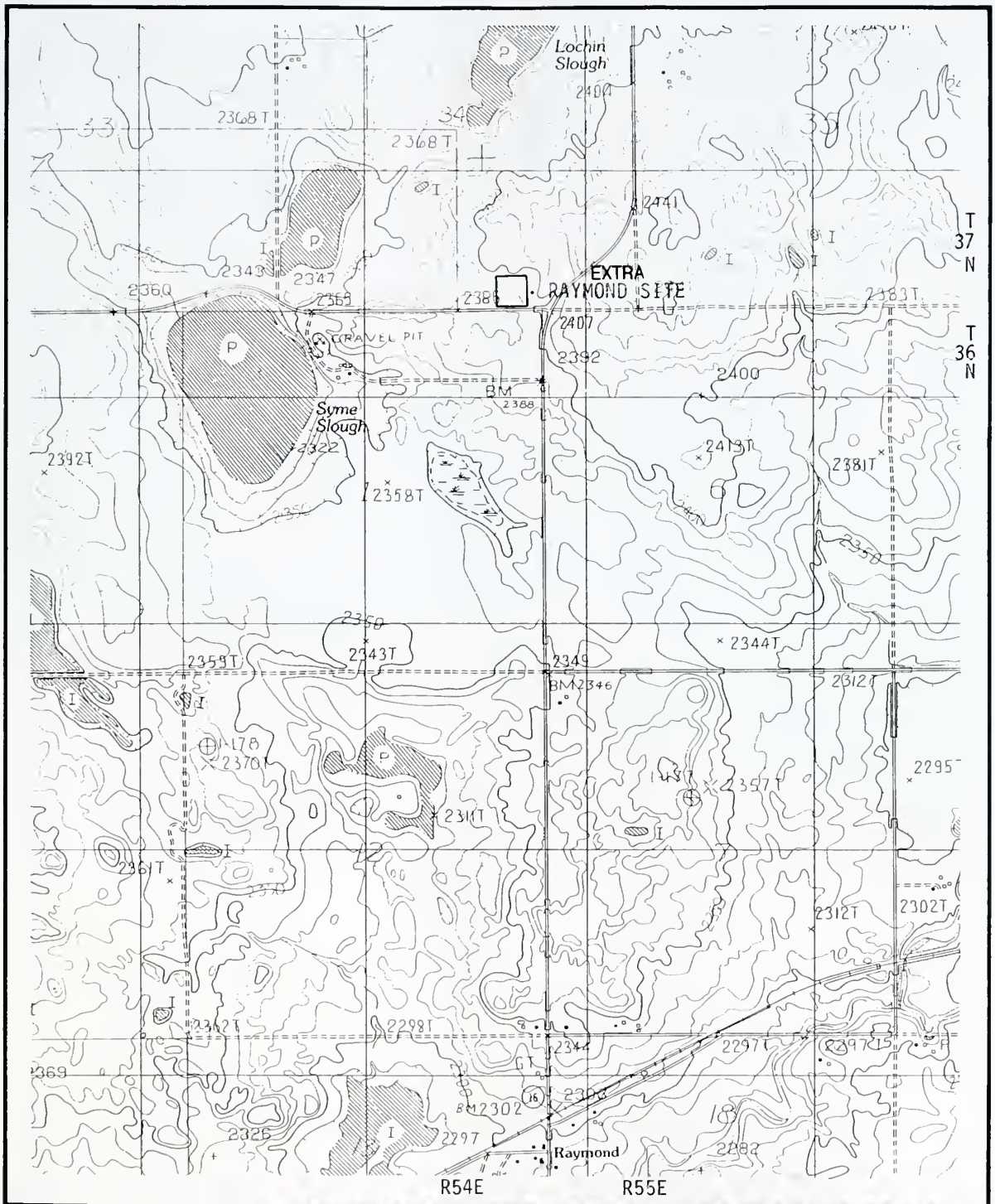
~~RICHARDSON~~, ANTELOPE II ~~& ANTELOPE I~~ MINES
GENERAL LAYOUT & SITE PLAN

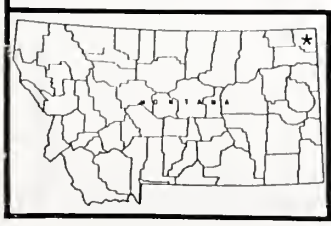
DRAWN BY: L.O.R. L.B.P.
CHECKED BY: A.W.N.
APPROVED BY:
REVISED: AS BUILT 2-22-91
SCALE: AS SHOWN
SHEET NO. 7 OF 7

AS-BUILT DRAWING AND PHOTO INDEX



AS–BUILT DRAWING AND PHOTO INDEX





STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

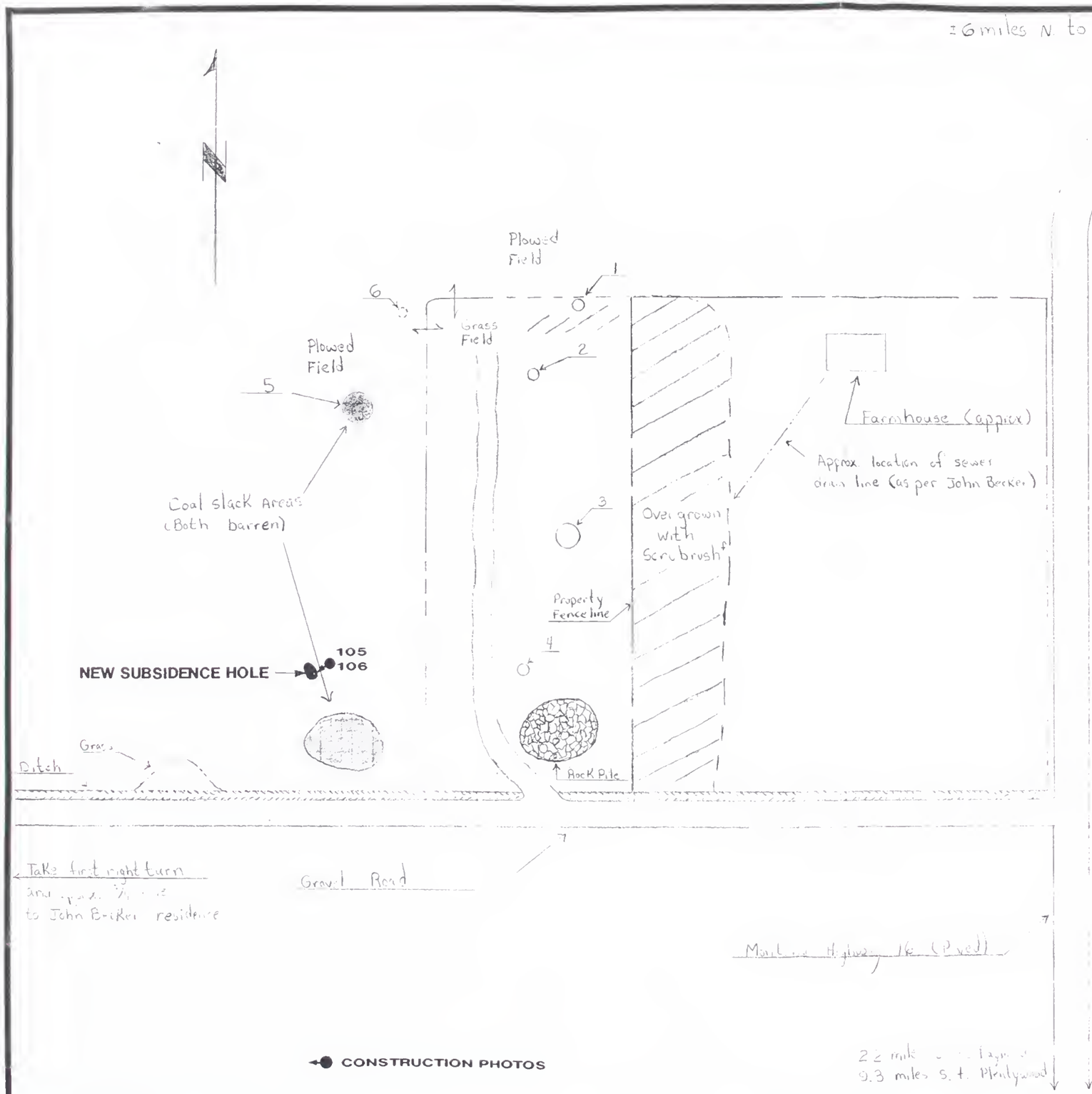
SITE MAP

SITE Raymond (Nick Lockin Mine)

COUNTY, MT; Sheridan TOWNSHIP 37N RANGE 54E

SECTION(S) 34 LATITUDE 48°54.7' LONGITUDE 104°34.9'

MAP SCALE: 1" = 2000 U.S.G.S. QUAD SHEET Raymond



Site	L'	W'	D'
1[a]	12	12	1
2[b]	12	12	
3	20' Dia Grain Silo		
4[c]	12	12	1
5[d]	25	25	
6[e]	±10	±10	

Footnotes

a. Small concrete blocks present, supposedly site of air shaft

b. Barren circular patch in grassy field. Owner said this hole has been filled.

c. slightly depressed area that owner has filled. Supposedly site of mine shaft.

d. Coal stacked area supposedly a shaft area, presently filled in.

e. Owner claims a sinkhole use to exist here, presently filled in.

f. Area is heavily overgrown in brush. Owner claims some sinkholes exist in this area, although none were found. Also next door neighbor's (shown) sewer drain line in this area.

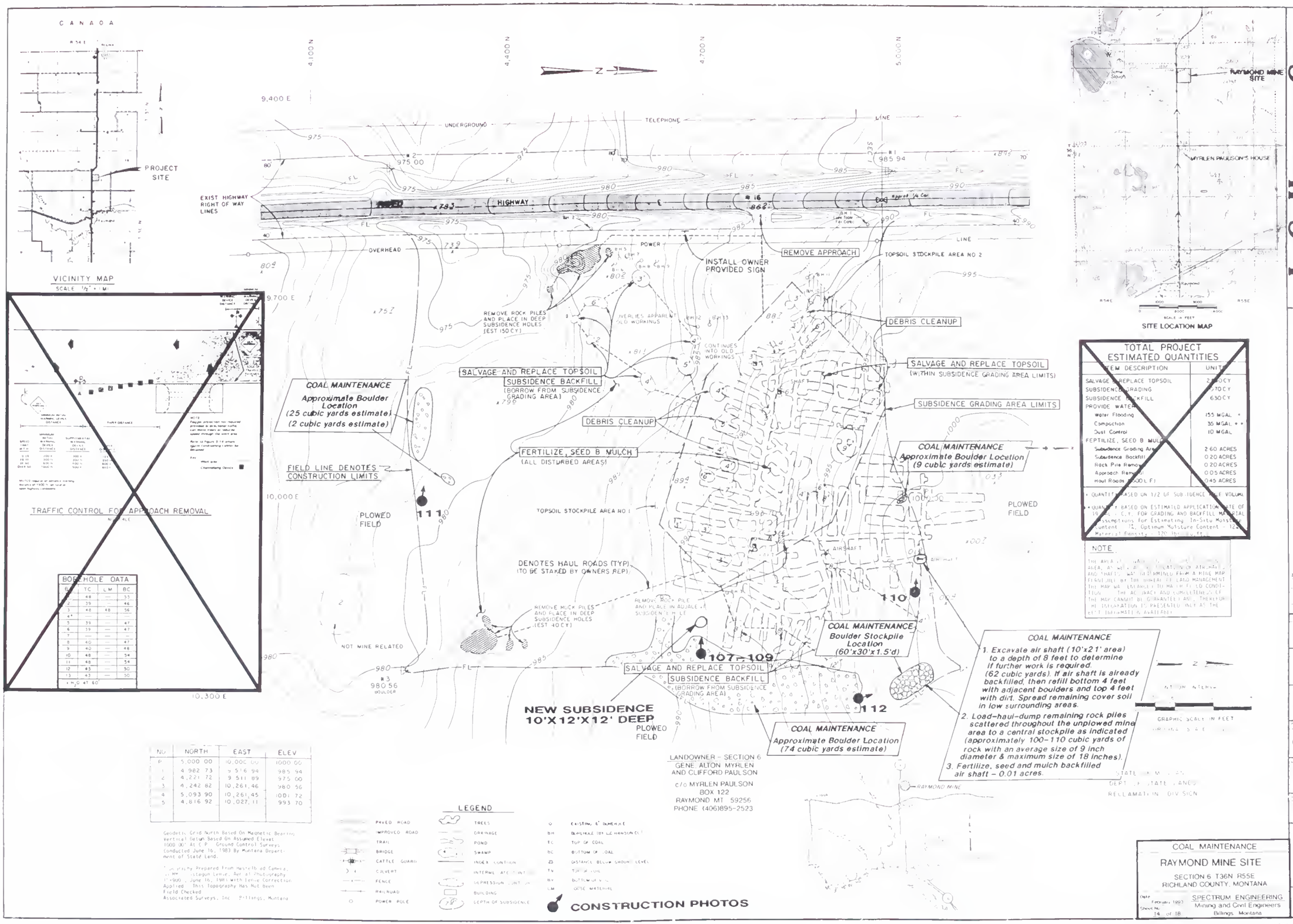
NOTE: OWN MINE (shaded)

SE¼ Sec. 34, T27N R54E

AS–BUILT DRAWING AND PHOTO INDEX

Date	Scale	Drawn
5/86	1" = 100'	[illegible]

COAL MAINTENANCE
EXTRA RAYMOND SITE



NO	NORTH	EAST	ELEV
P	5,000 00	10,000 00	1000 00
1	4 982 73	9 516 94	985 94
2	4,221 72	9 511 89	975 00
3	4,242 82	10,261,46	980 56
4	5,093 90	10,261,45	1001 72
5	4,816 92	10,027,11	993 70

Geodetic Grid North Based On Magnetic Bearing
Vertical Datum Based On Assumed Elevation
1000 00' At C P Ground Control Surveys
Conducted June 16, 1983 By Montana Department of State Land

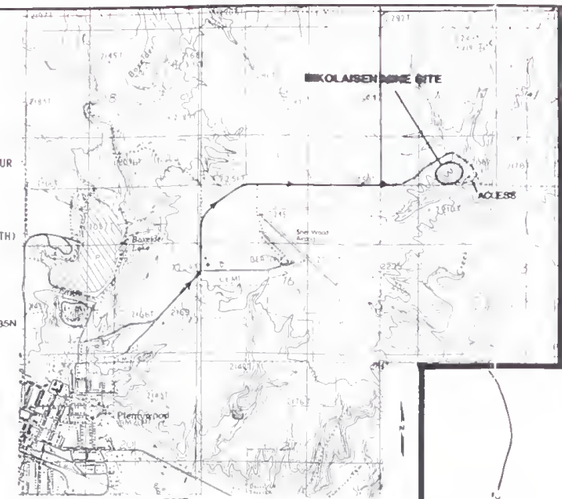
Topography Prepared From Hasselblad Camera, 35 MM Kodagun Lense, Aerial Photography 1"=900', June 16, 1981 with Lense Correction Applied This Topography Has Not Been Field Checked
Associated Surveys, Inc Billings, Montana

AS-BUILT DRAWING AND PHOTO INDEX

LEGEND

- PAVED ROAD
- IMPROVED ROAD
- ACCESS ROUTE
- FENCE
- BP — BURIED POWER LINE
- BT — BURIED TELEPHONE LINE
- B.H.3 — BOREHOLE (& NO.)
- TREES
- DRAINAGE
- POND
- S.P. — SINGLE PANEL
- SWAMP
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- DEPRESSION CONTOUR
- BUILDING
- 7' — SUBSIDENCE (& DEPTH)
- FISSURES
- OPEN ADIT
- CLOSED ADIT
- WASTE PILE
- D.P. — DOUBLE PANEL

CONSTRUCTION PHOTOS



SCALE IN FEET

SITE LOCATION MAP

NIKOLAISEN - ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	52 C.Y.
CLOSE MINE OPENINGS A. ADIT	2 EACH
SPECIAL GRADING	283 C.Y.
PROVIDE WATER	16.0 MGAL.
FERTILIZE, SEED & MULCH	0.6 ACRE

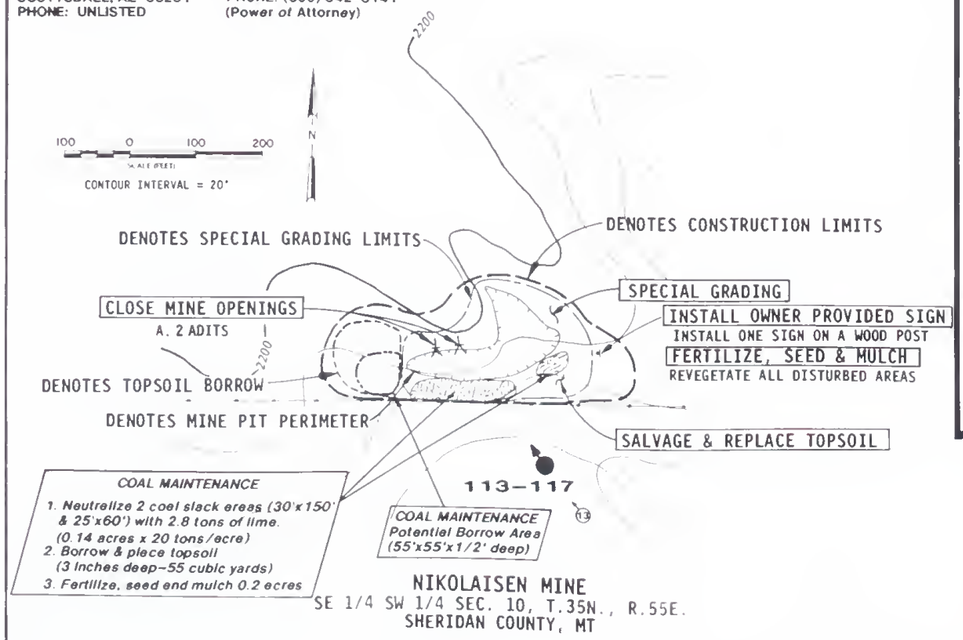
+ BASED ON ASSUMED FIELD CONDITIONS:
DRY WEIGHT - 113 P.C.F.
IN-SITU MOISTURE CONTENT - 6%
OPTIMUM MOISTURE CONTENT - 12%
WORK ITEMS WATER APPLIED TO:
CLOSE MINE OPENINGS, AND SPECIAL GRADING

LANDOWNER

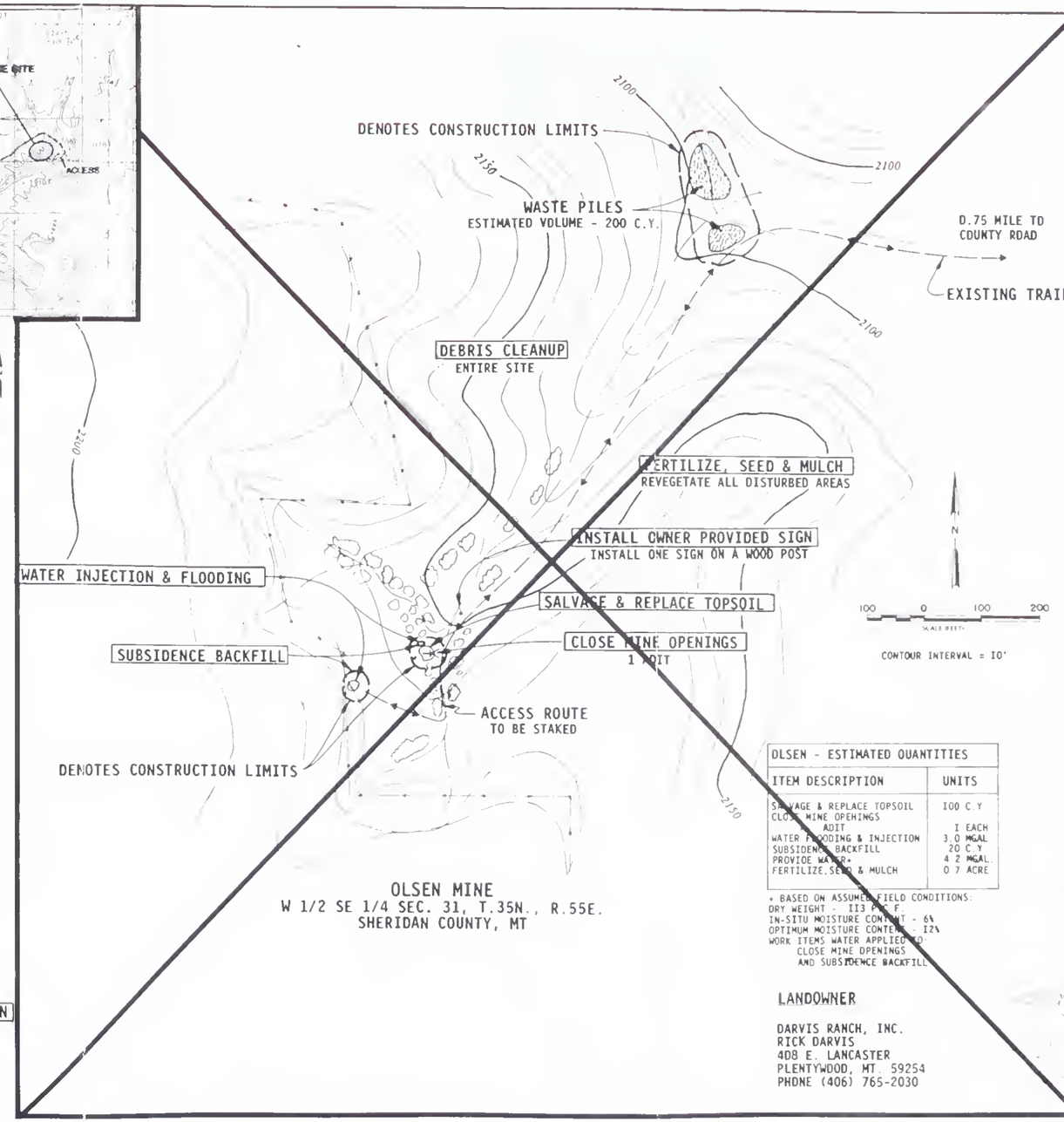
MARETTA RAMIREZ
(Lucille Stewart's Sister)
7508 E. McKNIGHT
SCOTTSDALE, AZ 85251
PHONE: UNLISTED

LANDOWNER

LUCILLE C. KING STEWART
15 ASH DRIVE
WAYBURN, SASKATCHEWAN S4H0R9
PHONE: (306) 842-8141
(Power of Attorney)



NIKOLAISEN MINE
SE 1/4 SW 1/4 SEC. 10, T.35N., R.55E.
SHERIDAN COUNTY, MT



OLSEN - ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
SALVAGE & REPLACE TOPSOIL	100 C.Y.
CLOSE MINE OPENINGS ADIT	1 EACH
WATER FLOODING & INJECTION	3.0 MGAL.
SUBSIDENCE BACKFILL	20 C.Y.
PROVIDE WATER+	4.2 MGAL.
FERTILIZE, SEED & MULCH	0.7 ACRE

+ BASED ON ASSUMED FIELD CONDITIONS:
DRY WEIGHT - 113 P.C.F.
IN-SITU MOISTURE CONTENT - 6%
OPTIMUM MOISTURE CONTENT - 12%
WORK ITEMS WATER APPLIED TO:
CLOSE MINE OPENINGS
AND SUBSIDENCE BACKFILL

OLSEN MINE
W 1/2 SE 1/4 SEC. 31, T.35N., R.55E.
SHERIDAN COUNTY, MT

LANDOWNER

DARVIS RANCH, INC.
RICK DARVIS
408 E. LANCASTER
PLENTYWOOD, MT. 59254
PHONE (406) 765-2030

COAL MAINTENANCE
NIKOLAISEN MINE SITE
SECTION 10, T35N R55E
SHERIDAN COUNTY, MONTANA
Date February 1993
Sheet No. 15 of 18
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

NOTICE

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STATE OF MONTANA
DEPT. OF STATE LANDS
RECLAMATION DIVISION

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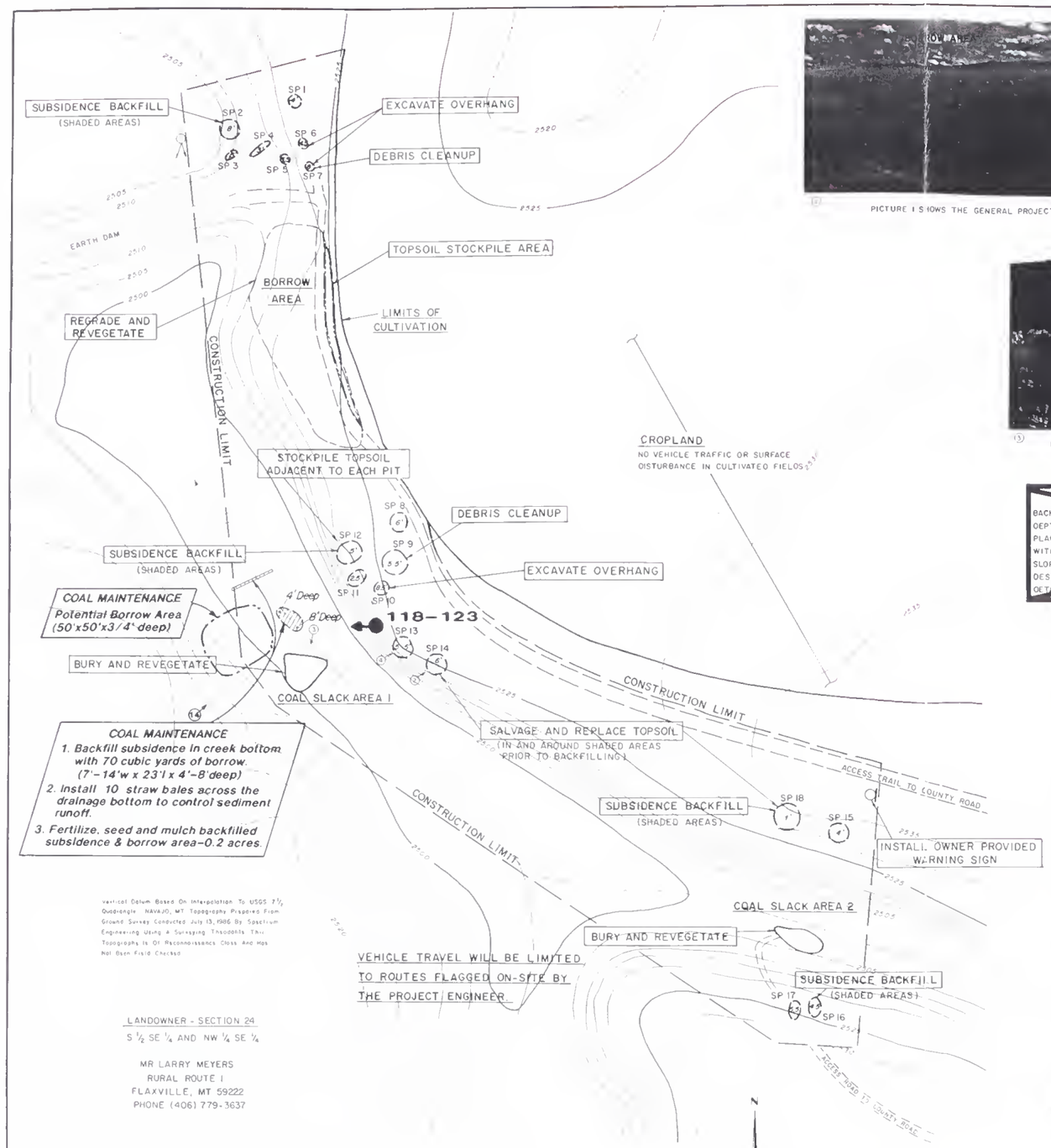
L. C. Hanson Co.
CONSULTING, CIVIL, SANITARY, MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

NIKOLAISEN MINE
GENERAL LAYOUT & SITE PLAN

DRAWN BY: L.D.R. L.B.P.
CHECKED BY: A.W.N.
APPROVED BY:
REVISED: AS BUILT 2-22-91
SCALE: AS SHOWN
SHEET NO. 6 / 7

AS-BUILT DRAWING AND PHOTO INDEX



COAL MAINTENANCE

1. Backfill subsidence in creek bottom with 70 cubic yards of borrow. (7'–14'w x 23'l x 4'–8'deep)
2. Install 10 straw bales across the drainage bottom to control sediment runoff.
3. Fertilize, seed and mulch backfilled subsidence & borrow area–0.2 acres.

Vertical Datum Based On Interpolation To USGS 7½ Quadrangle NAVAJO, MT Topography Prepared From Ground Survey Conducted July 13, 1986 By Spectrum Engineering Using A Surveying Theodolite. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

LANDOWNER - SECTION 24

S ½ SE ¼ AND NW ¼ SE ¼

MR LARRY MEYERS
RURAL ROUTE 1
FLAXVILLE, MT 59222
PHONE (406) 779-3637

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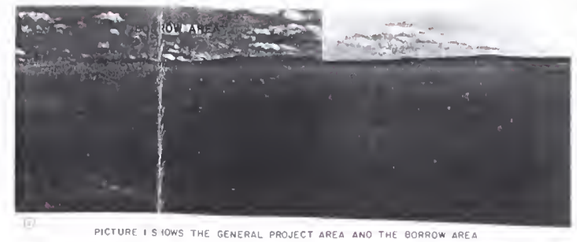
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT [illegible] SHOULD EXERCISE [illegible] CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

LEGEND

—2525— CONTOUR	SP 7 / 8' SUBSIDENCE PIT (SP. NUMBER / DEPTH)
5 PICTURE NUMBER AND ORIENTATION	DRAINAGE
TRAIL	COAL SLACK AREA

CONSTRUCTION PHOTOS



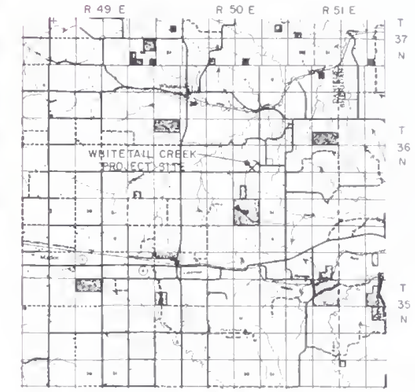
PICTURE 1 SHOWS THE GENERAL PROJECT AREA AND THE BORROW AREA

PICTURE 2 SHOWS SUBSIDENCE PIT 14

STATE LOCATION MAP

PICTURE 3 SHOWS COAL SLACK AREA 1

PICTURE 4 SHOWS SUBSIDENCE PIT 13



VICINITY ACCESS MAP

WORK DESCRIPTION

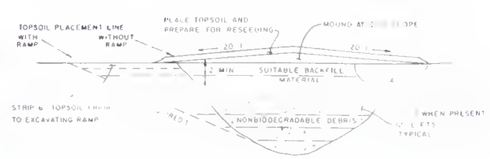
BACKFILL SUBSIDENCE PITS WITH MATERIAL FROM THE BORROW AREA (APPROXIMATELY [illegible] FT OF BORROW DEPTH). SUBSIDENCE PITS 6, 7 & 10 [illegible] UNDERCUT THE OVERHANG MATERIAL MUST BE EXCAVATED AND PLACED INTO THE PITS PRIOR TO PLACING THE BACKFILL MATERIAL. BURY THE COAL SLACK AREAS WITH SUITABLE SOIL MATERIAL. REGRADE THE BORROW AREA BACKFILL AREAS TO PROVIDE UNIFORM SLOPES AND SMOOTH TRANSITIONS WITH EXISTING CONTOURS. ALL DEBRIS WILL BE DISPOSED OF IN DESIGNATED AREAS. ALL DISTURBANCE AREAS WILL BE SEEDED, FERTILIZED AND MULCHED. ADDITIONAL DETAILS AND DESCRIPTIONS ARE LOCATED IN THE SPECIAL PROVISIONS.

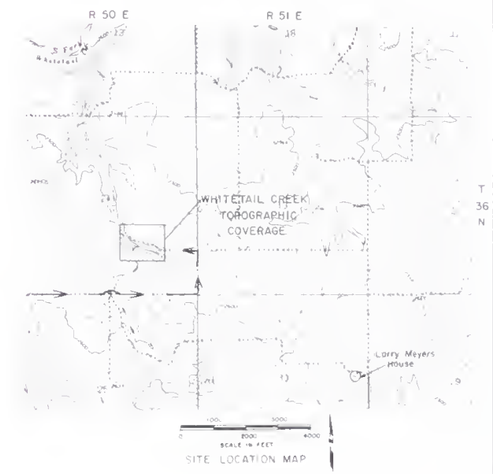
DESCRIPTION OF RECLAMATION FEATURES

ITEM	DIMENSIONS (FEET)	DEPTH (FEET)	ESTIMATED VOID VOLUME (CUBIC YARDS)
SP 1	13 x 13	4	[illegible]
SP 2	17 x 17	8	44
SP 3	6 x 12	5	7
SP 4	9 x 24	5	9
SP 4A	6 x 8	2.5	3
SP 5	10 x 12	5.5	11
SP 6	[illegible] x 10	4.5	9
SP 7	8 x 8	[illegible]	17
SP 8	17 x 17	6	30
SP 9	22 x 22	5.5	42
SP 10	10 x 10	8.5	25
SP 11	13 x 18	2.5	11
SP 12	18 x 26	5	46
SP 13	17 x 17	5	27
SP 14	[illegible] x 22	6	32
SP 15	13 x 15	4	14
SP 16	13 x 17	4.5	20
SP 17	12 x 18	5.5	23
SP 18	22 x 22	1	7
COAL SLACK AREA 1	29 x 35	0	[illegible]
COAL SLACK AREA 2	14 x 28	0	[illegible]
BORROW AREA	0.26 ACRES	–	–
REVEGETATION	0.4 ACRES		

SUBSIDENCE BACKFILL DETAIL

NO SCALE





SITE LOCATION MAP

COAL MAINTENANCE

WHITETAIL CREEK SITE

SECTION 24 T36N R50E
DANIELS COUNTY, MONTANA

Date	February 1993	SPECTRUM ENGINEERING Mining and Civil Engineers Billings Montana
Sheet No	16 of 18	

SITE PLAN AND GENERAL LAYOUT

WHITETAIL CREEK SITE
SE¼ SECTION 24, T36N, R50E
DANIELS COUNTY, MONTANA

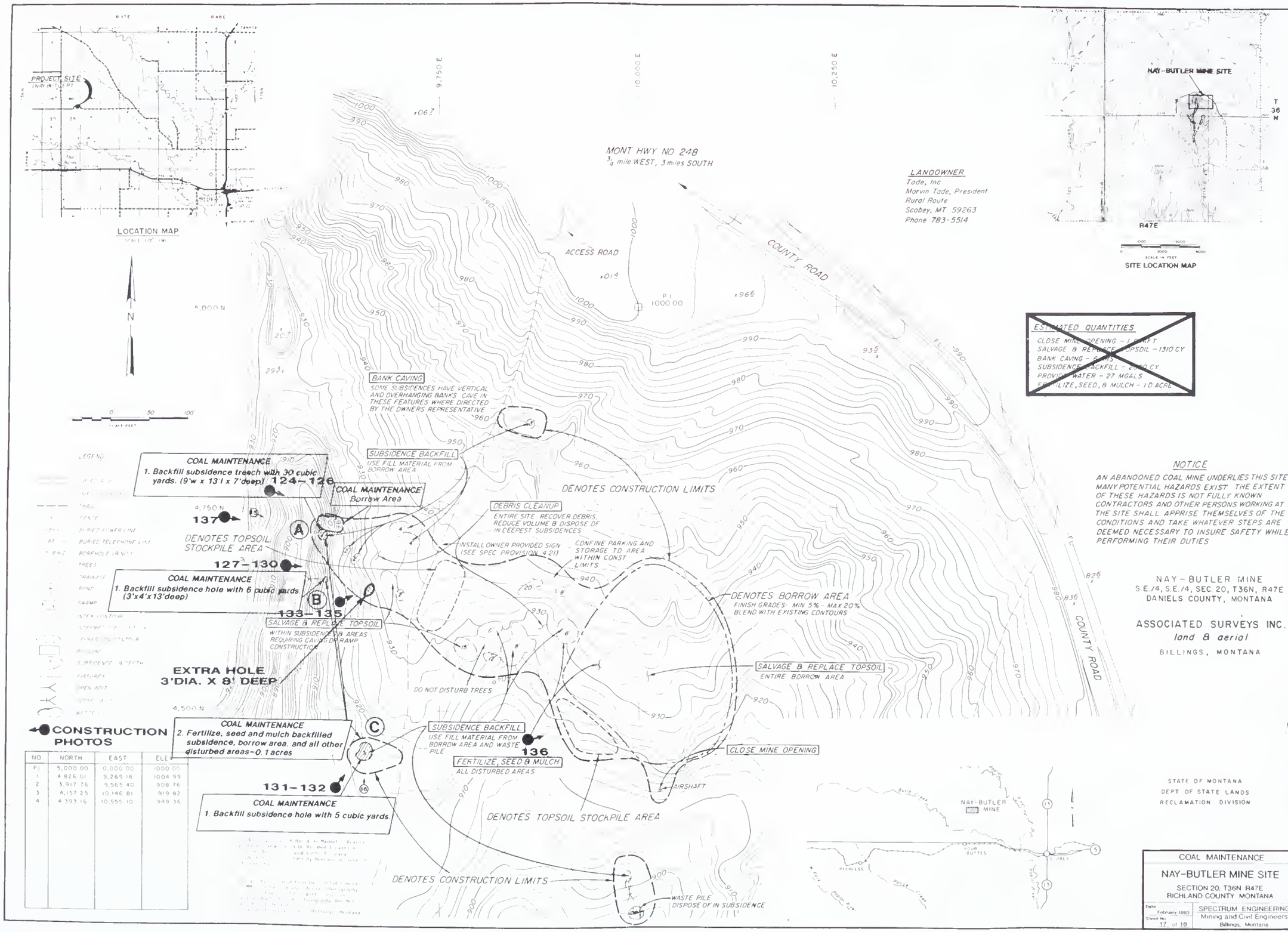
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE	12-19-86
DRAWN BY	[illegible]
APPROVED BY	[illegible]
REVISIONS NO / DATE / BY	

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO [illegible] of [illegible]

AS-BUILT DRAWING AND PHOTO INDEX



NO	NORTH	EAST	ELEV
P	5,000.00	0,000.00	1000.00
1	4,826.01	9,269.18	1004.99
2	3,917.76	9,565.40	908.76
3	4,157.25	10,146.81	919.82
4	4,393.16	10,555.10	989.36

AS-BUILT DRAWING AND PHOTO INDEX

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
EQUIPMENT		
1	09-10-93	Cat 416B backhoe with loader.
2	09-10-93	Ford 370 dump truck with water tank.
3	09-10-93	Bame 3-axle trailer.
4	09-10-93	GMC pickup with fuel tank.
5	09-10-93	Brillion grass seeder.
6	09-10-93	JD 770 tractor with loader.
7	09-10-93	Six foot spring tooth.
8	09-10-93	Seven foot crimper.
9	09-10-93	Smith 2-axle trailer.
BLACK DIAMOND NORTH SITE		
10	01-25-93	Pre-construction of Subsidence Hole A.
11	09-10-93	Subsidence Hole A excavated.
12	09-10-93	Hole A backfilled and topsoiled.
13	09-11-93	Hole A finished.
14	09-09-93	Pre-construction of Subsidence Hole B.
15	09-09-93	Pre-construction of Subsidence Hole B.
16	09-10-93	Subsidence Hole B excavated.
17	09-10-93	Filling Hole B with backhoe.
18	09-10-93	Hole B backfilled and topsoiled.
19	09-11-93	Hole B and borrow finished.
20	09-10-93	Borrow area.
21	09-10-93	Spring tooth on borrow area.
22	09-10-93	Borrow area topsoiled.

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
NORTH WIBAUX MINE		
23	01-25-93	Pre-construction of subsidence holes.
24	09-11-93	Hole A excavated from bottom.
25	09-11-93	Hole A filled.
26	09-11-93	Crimping of Hole A.
27	09-11-93	Finished site.
28	09-11-93	Pre-construction of Hole B.
29	09-11-93	Hole B excavated.
30	09-11-93	Compaction of Hole B.
31	09-11-93	Borrow area.
32	09-12-93	Coal slack pile and borrow area.
33	09-11-93	Holes A and B complete.
MULLENDORE SITE		
34	04-21-93	Pre-construction of Subsidence Holes 1-13.
35	04-21-93	Pre-construction of Subsidence Holes 1-13.
36	04-21-93	Pre-construction of Subsidence Holes 1-13.
37	04-21-93	Pre-construction of Subsidence Holes 1-13.
38	09-12-93	West side filled and mulched.
39	09-12-93	East side filled and mulched.
40	09-12-93	Borrow area seeded, fertilized, and mulched.

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
JOHNSON HILL SITE		
41	09-12-93	Pre-construction of one of the erosional channels.
42	09-13-93	Repairing erosional channels.
43	09-16-93	Crimped hay on erosion channel.
44	09-16-93	Erosional channels complete.
45	01-25-93	Aerial view of coal slack area.
46	09-13-93	Load of bag lime.
47	09-14-93	Sack of lime.
48	09-13-93	Spreading lime on Coal Slack Area #1.
49	09-14-93	Working in lime on #2 Coal Pile.
50	09-15-93	Topsoil at Coal Pile #2.
51	09-13-93	Topsoil being laid on Coal Slack Pile #1.
52	09-16-93	Fertilizing Coal Slack Pile #1.
53	09-16-93	Coal Slack Pile #2 ready for seeding, fertilizing, and mulching.
54	09-16-93	Seeding Coal Pile #1.
55	09-16-93	Close-up of drill seeded rows.
56	09-16-93	Coal Slack Pile #2 completed.
57	09-15-93	Loading topsoil at borrow area.
58	09-16-93	Borrow area ready for seeding, fertilizing, and mulching.
59	09-16-93	Borrow area after reclamation completed.
SCHMIDT SITE		
60	01-25-93	Pre-construction view of air shaft subsidence.
61	09-17-93	Air shaft filled in.
62	09-17-93	Site revegetated.

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
AHREN SITE		
63	09-17-93	Pre-construction of Subsidence Holes A & B.
64	09-17-93	Pre-construction of Subsidence Holes A & B.
65	09-17-93	Subsidence Holes A & B filled in.
66	09-17-93	Subsidence Hole A & B being crimped.
67	09-17-93	Subsidence Hole A & B being crimped.
68	09-17-93	Pre-construction of Subsidence Holes A & B.
69	09-17-93	Subsidence Hole C filled in.
70	09-17-93	Subsidence Hole C being crimped.
SEVEN SISTERS SITE		
71	09-17-93	Pre-construction of opening.
72	09-18-93	Excavation of collapsed roof.
73	09-18-93	Excavation of collapsed roof.
74	09-18-93	Collapsed opening backfilled with borrow.
75	09-18-93	Collapsed opening backfilled with borrow.
76	09-20-93	Drill seeding coal slack area.
77	09-20-93	Borrow area and collapse area with mulch.
78	09-18-93	152½ yds out of borrow area.
79	09-20-93	Borrow area with mulch.
80	09-20-93	Crimping borrow area.
CANYON CREEK SITE		
81	09-18-93	Pre-construction of site.
82	01-25-93	Pre-construction of site.

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
83	09-18-93	Pre-construction of site.
84	09-20-93	Excavation of subsidence.
85	09-20-93	Excavation of subsidence.
86	09-21-93	Compaction of subsidence.
87	09-21-93	Subsidence filled.
88	09-21-93	Seeding subsidence area.
89	09-21-93	Subsidence area completed.
90	09-21-93	Borrow area.
91	09-21-93	Borrow area completed.
BEMER SITE		
92	09-19-93	Pre-construction of adit opening.
93	09-19-93	Pre-construction of adit opening.
94	09-21-93	Excavation of adit.
95	09-21-93	Excavation of adit.
96	09-22-93	Adit backfilled and revegetated.
97	09-22-93	Adit backfilled and revegetated.
ANTELOPE II SITE		
98	09-22-93	Pre-construction of erosional channels.
99	09-22-93	Erosion channels filled in.
100	09-23-93	Excavation of diversion ditch.
101	09-23-93	Revegetation complete at site.

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
MEYER SITE		
102	01-25-93	Aerial view of subsidence hole.
103	01-25-93	Pre-construction of subsidence hole.
104	09-23-93	Subsidence backfilled and revegetated.
NEW RAYMOND SITE (NICKLOCKIN)		
105	09-22-93	Pre-construction of subsidence hole (4' x 4' x 2' deep).
106	09-22-93	Post-construction view (no reveg in plowed field per landowner).
RAYMOND SITE		
107	09-25-93	Pre-construction of extra air shaft.
108	09-25-93	Excavation of extra air shaft.
109	09-25-93	Excavated air shaft prior to backfilling.
110	09-25-93	Excavation of assumed air shaft (per landowner).
111	04-21-93	Pre-construction of scattered boulders.
112	09-25-93	Piled 95 cy of boulders off of hay field.
NIKOLAISEN SITE		
113	01-26-93	Pre-construction view of coal slack piles.
114	09-23-93	Pre-construction of coal slack piles.
115	09-23-93	Pre-construction of coal slack piles.
116	09-24-93	Coal slack pile revegetated.
117	09-24-93	Borrow area revegetated.

1993 NORTHEASTERN MT COAL MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
WHITETAIL CREEK SITE		
118	01-25-93	Preconstruction aerial view of subsidence hole.
119	09-24-93	Pre-construction of subsidence hole.
120	09-26-93	Laying down straw bales.
121	09-26-93	Filling subsidence from borrow area.
122	09-26-93	Subsidence and borrow area ready for revegetation.
123	09-26-93	Crimping reclaimed area.
NAY-BUTLER SITE		
124	09-24-93	Pre-construction of Subsidence Hole A.
125	09-26-93	Borrow area and Trench A backfilled.
126	09-26-93	Borrow area and Trench A revegetated.
127	09-24-93	Pre-construction of Subsidence Hole B.
128	09-26-93	Subsidence Hole B backfilled.
129	09-26-93	Hole B revegetated.
130	09-26-93	Hole B revegetated.
131	09-26-93	Pre-construction of Subsidence Hole C.
132	09-26-93	Subsidence Hole C backfilled.
133	09-26-93	Pre-construction of extra subsidence hole.
134	09-26-93	Excavation of extra subsidence hole.
135	09-26-93	Excavation of extra subsidence hole.
136	09-26-93	View of #2 borrow area.
137	09-26-93	Entire area revegetation complete.

EQUIPMENT

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1993 NORTHEASTERN MONTANA COAL MAINTENANCE PROJECT

BLACK DIAMOND
NORTH MINE SITE
T13N, R60E, SEC. 10
WIBAUX COUNTY

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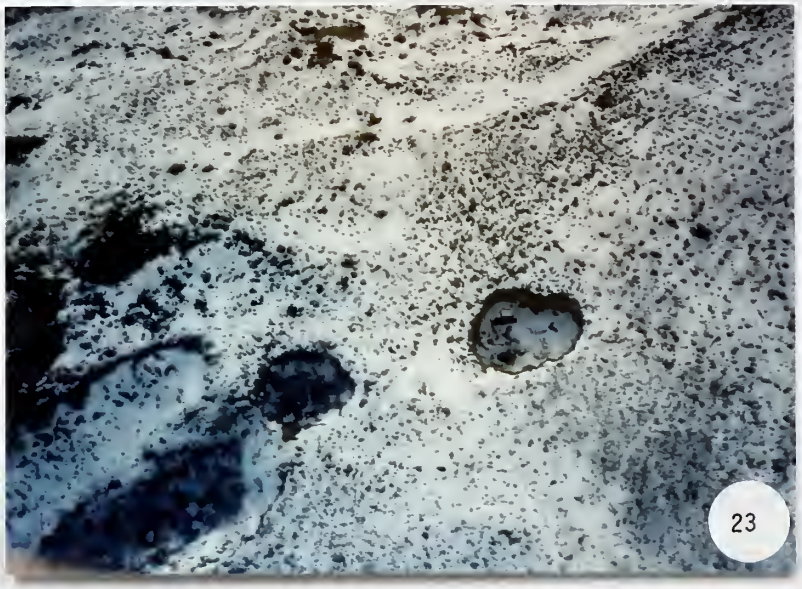
NORTH WIBAUX SITE
T15N, R59E, SEC. 13
SE¼NE¼
WIBAUX COUNTY

HELICOPTER TRIP
JANUARY 25/26, 1993
JOEL CHAVEZ/
BILL MAEHL

NORTH WIBAUX
T15N, R59, SEC. 13
WIBAUX COUNTY

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MULLENDORE SITE
T16N, R57E, SEC. 30
DAWSON COUNTY


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JOHNSON HILL SITE
T20N, R54E, SEC. 31
DAWSON COUNTY

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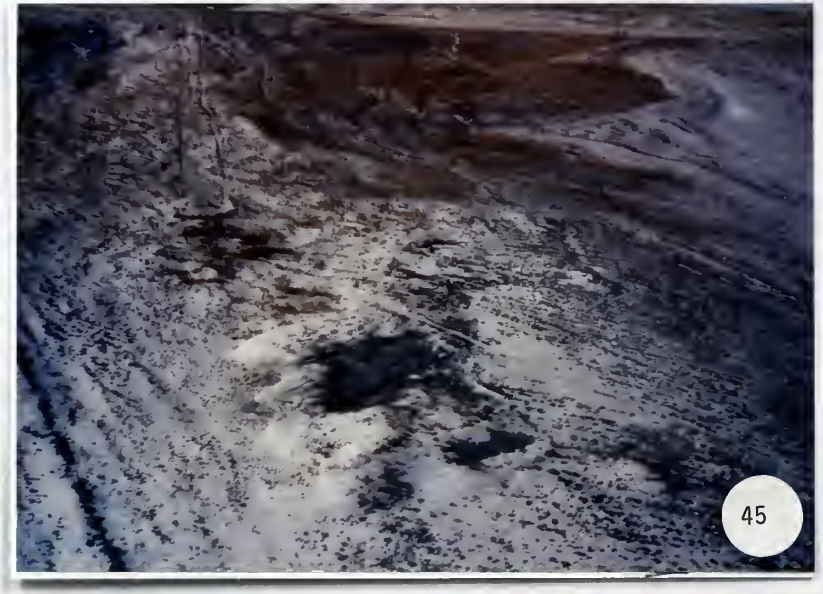

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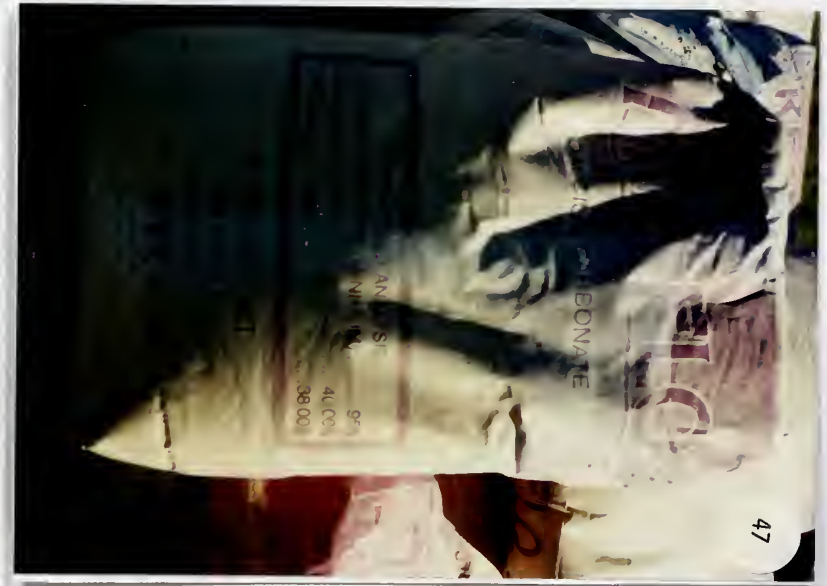

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SCHMIDT SITE
T21N, R54E, SEC. 34
DAWSON COUNTY

AHREN MINE SITE
T23N, R53E, SEC. 26 & 27
RICHLAND COUNTY

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Roll IX # 6

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93

Roll IX # 14

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93

SEVEN SISTERS MINE
T21N, R58E, SEC. 21
RICHLAND COUNTY

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Roll IV #19

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93

CANYON CREEK MINE
T21N, R59E, SEC. 17
RICHLAND COUNTY


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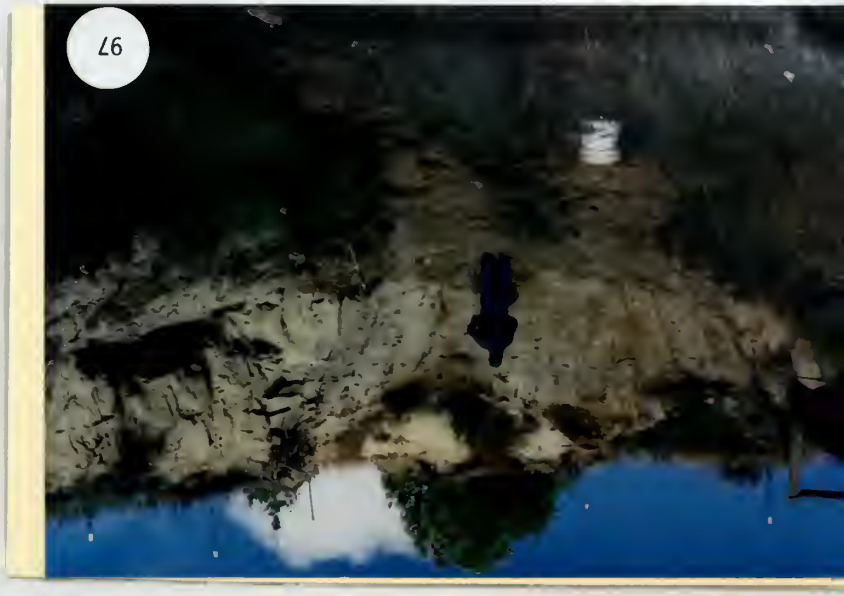
BEMER MINE SITE
T27N, R56E, SEC. 18
RICHLAND COUNTY

Roll II #4

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93



ANTELOPE II MINE
T34N, R55E, SEC. 16
SHERIDAN COUNTY

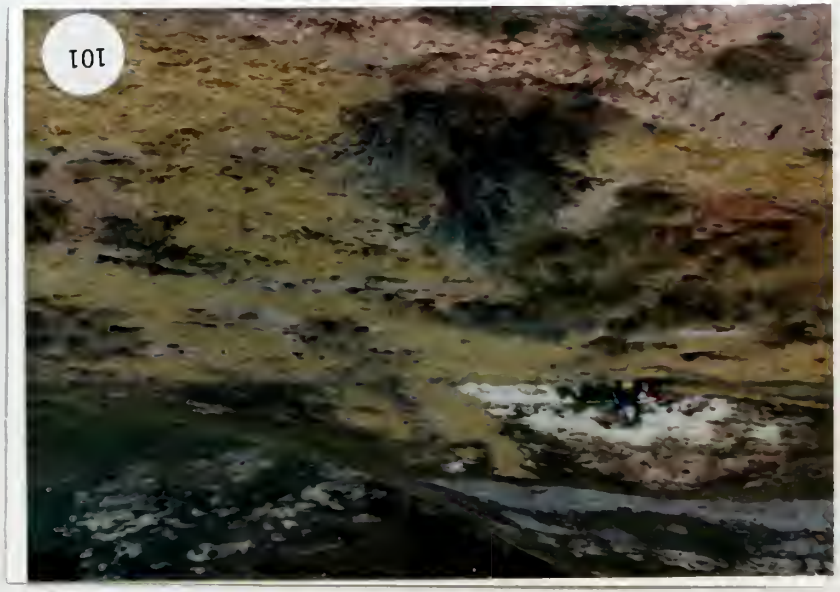
MEYER MINE SITE
T35N, R58E, SEC. 5
NE¼
SHERIDAN COUNTY

HELICOPTER TRIP
JANUARY 25/26, 1993
JOEL CHAVEZ/
BILL MAEHL

Roll V # 14

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93



MEYER MINE SITE
T35N, R58E, SEC. 5
SHERIDAN COUNTY

NEW RAYMOND SITE
(NICKLOCKIN)
T37N, R54E, SEC. 34
SHERIDAN COUNTY

RAYMOND MINE SITE
T36N, R55E, SEC. 6
SHERIDAN COUNTY

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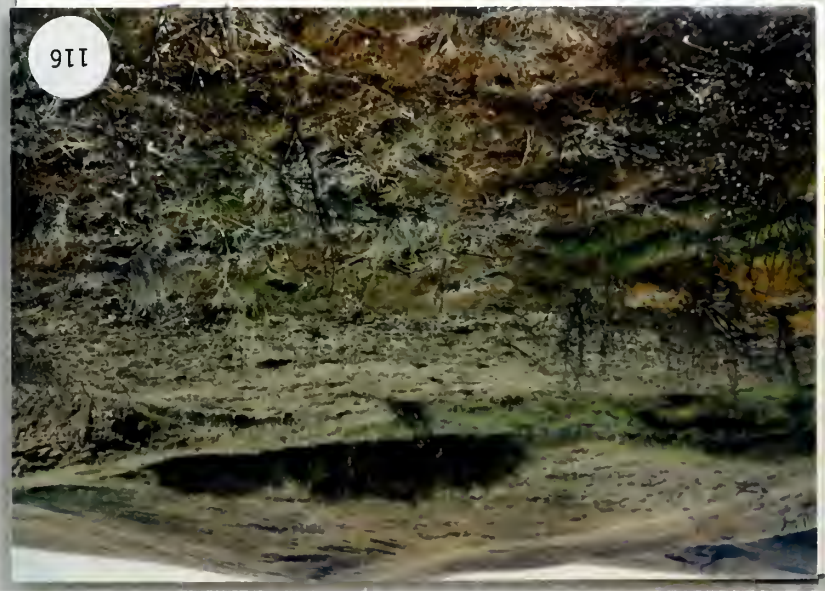
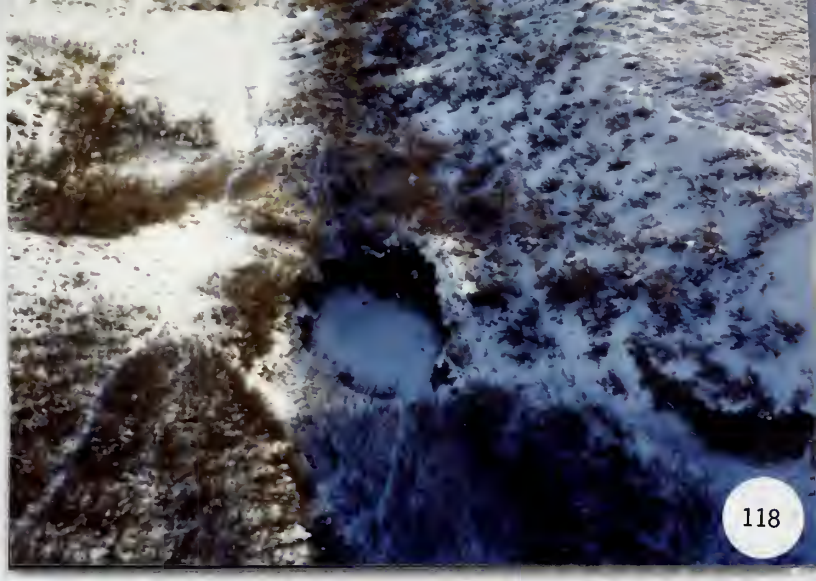
NIKOLAISEN MINE SITE
T35N, R55E, SEC. 10
SHERIDAN COUNTY

WHITETAIL CREEK SITE
T36N, R50E, SEC. 24
SE¼
DANIELS COUNTY

HELICOPTER TRIP
JANUARY 25/26, 1993
JOEL CHAVEZ/
BILL MAEHL



WHITETAIL CREEK SITE
T36N, R50E, SEC. 24
DANIELS COUNTY



Roll IV # 21

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93

NAY-BUTLER MINE SITE
T36N, R47E, SEC. 20
DANIELS COUNTY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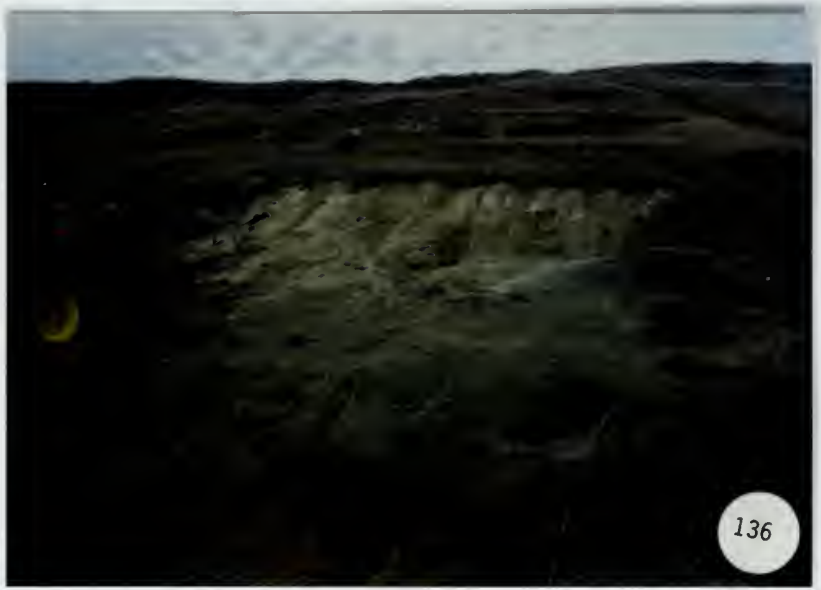

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Roll VI # 23

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93

Roll VI # 18

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93

1993 NORTHEASTERN MT COAL
MAINTENANCE PROJECT
DSL-AMRB 93-M03

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/9/93-9/26/93